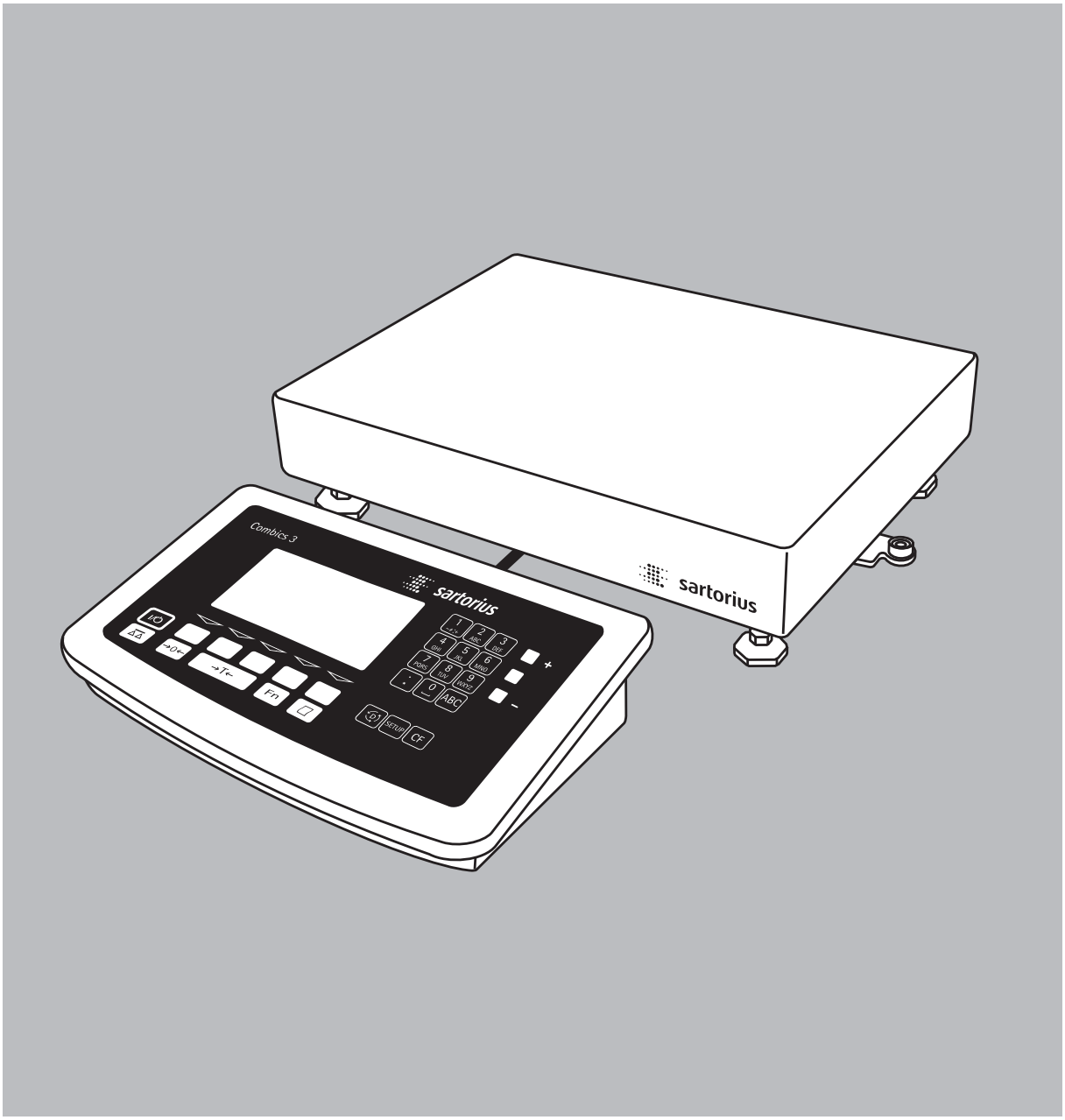
sartorius
mechatronics

Operating Instructions

Sartorius Combics 3

Models CW3P | CW3S | CW3FS | CH3E | CH3G
Complete Combics Scales



98648-011-25

Intended Use

Combics 3 is a rugged, easy-to-use complete scale for the complex quality control tasks you perform every day:

- in the food industry
- in the pharmaceutical industry
- in the chemical industry
- in the electronics and metal-working industries

The Combics 3 scales meet the highest requirements placed on the accuracy and reliability of weighing results, with:

- Rugged construction and long service life (stainless steel housing)
- Easy operation, thanks to the following features:
  - large keys with positive click action
  - alphanumeric keypad with 'ABC' input
  - large, backlit, fully graphic-capable dot-matrix display
  - plain-text user guidance
- Easy to clean and disinfect
- Can be operated independently of the weighing platform location
- Range of interfaces for flexible use
- Optional password-protection for operating parameters

Combics 3 complete scales speed up your routine procedures with:

- Fast response times
- Simple function for assigning up to 4 alphanumeric lines for identifying weight values
- Connectivity for two weighing platforms
- Automatic initialization when the scale is switched on
- Automatic taring when a load is placed on the weighing platform
- Optional remote control using an external computer

Symbols
The following symbols are used in these instructions:

● indicates required steps

○ indicates steps required only under certain conditions

> describes what happens after you have performed a certain step

⚠ indicates a hazard

Hotline:
For advice on the use of these applications, just call of fax your local Sartorius office. For the address, please visit our Internet website at: www.sartorius.com

Contents

Warning and Safety Information

The Combics complies with the European Council Directives as well as international regulations and standards for electrical equipment, electromagnetic compatibility, and the stipulated safety requirements.

● To prevent damage to the equipment, read these operating instructions carefully before using your Combics scale.

⚠ Do not use this equipment in hazardous areas/locations.

⚠ The indicator may be opened only by authorized service technicians who have been trained by Sartorius and who follow Sartorius' standard operating procedures for maintenance and repair work.

⚠ Make absolutely sure to unplug the indicator from power before you connect or disconnect any electronic peripheral devices to or from the interface port.

⚠ If you use electrical equipment in installations and under ambient conditions requiring higher safety standards, you must comply with the provisions as specified in the applicable regulations for installation in your country.

– Warning When Using Pre-wired RS-232 Connecting Cables: RS-232 cables purchased from other manufacturers often have incorrect pin assignments for use with Sartorius weighing systems. Be sure to check the pin assignments against the chart in this manual before connecting the cable, and disconnect any lines identified differently from those specified by Sartorius.

– Use only extension cords that meet the applicable standards and have a protective grounding conductor.

– Disconnecting the ground conductor is prohibited.

IP Protection:
– CW3P models are rated to IP44 (IP65 with Option L1)
– CW3S models are rated to IP67

– Note on installation:
The operator shall be responsible for any modifications to Sartorius equipment and must check and, if necessary, correct these modifications. On request, Sartorius will provide information on the minimum operating specifications (in accordance with the standards for defined immunity to interference).

○ If there is visible damage to the equipment or power cord: unplug the equipment and lock it in a secure place to ensure that it cannot be used for the time being

- Weighing platforms with dimensions of 1 × 1 m or larger are provided with suspension supports. Be careful not to stand under the load when the weighing platform/load plate is being transported or lifted with a crane. Always comply with the applicable safety regulations. Make sure to avoid damaging the terminal box or the load cells during transport.

⚠ Always wear gloves, safety boots and protective clothing when lifting the load plate with suction lifting equipment. Warning: Danger of personal injury! This work must be carried out by authorized and properly trained personnel.

– Connect only Sartorius accessories and options, as these are optimally designed for use with your Combics.

– Do not expose the indicator to aggressive chemical vapors or to extreme temperatures, moisture, shocks, or vibration.

– Clean your Combics only in accordance with the cleaning instructions (see "Care and Maintenance").

○ If you have any problems with your Combics:
contact your local Sartorius office, dealer or service center.

IP66/67 Protection Rating:
– The IP65/67 protection rating for the indicator is ensured only if the rubber gasket is installed and all connections are fastened securely (including the caps on unused sockets). Weighing platforms and equipment must be installed and tested by a certified technician.
– If you install an interface port or battery connector after setting up your Combics, keep the protective cap(s) in a safe place for protecting the interface port or battery connector when not in use, or prior to shipment. This will protect the data interface or battery connector from vapors, moisture and dust or dirt.

Using the Equipment in Legal Metrology:
– When the indicator is connected to a weighing platform and the resulting weighing instrument is to be verified, make sure to observe the applicable regulations regarding verification.

– If any of the verification seals are damaged, make sure to observe the national regulations and standards applicable in your country in such cases. In some countries, the equipment must be re-verified.

Getting Started

The complete scale is available in various versions. If you have ordered special options, the scale is equipped with the required features at the factory.

Storage and Shipping Conditions

- Allowable storage temperature: –10 ...+40°C (+14 to +104°F)
- Once the equipment has been removed from the packaging, it may lose accuracy if subjected to strong vibration. Excessively strong vibration may compromise the safety of the equipment.
- Do not expose the indicator to aggressive chemical vapors or to extreme temperatures, moisture, shocks, or vibration.

Unpacking the Combics

- ● After unpacking the equipment, please check it immediately for any visible damage.
- ○ If you detect any damage, proceed as directed in the chapter entitled "Care and Maintenance," under "Safety Inspection."
- ○ It is a good idea to save the box and all parts of the packaging until you have successfully installed your equipment. Only the original packaging provides the best protection for shipment.
- ○ Before packing your equipment, unplug all connected cables to prevent damage.

Equipment Supplied

- Indicator
- Weighing platform
- Operating instructions (this manual)
- Special accessories as listed on the bill of delivery, if ordered

Installation Instructions

The scale is designed to provide reliable results under normal ambient conditions in the laboratory and in industry. When choosing a location to set up your scale, observe the following so that you will be able to work with added speed and accuracy:

- Avoid placing the scale in close proximity to a heater or otherwise exposing it to heat or direct sunlight.
- Protect the scale from drafts that come from open windows or doors
- Avoid exposing the scale to extreme vibrations during weighing.
- Protect the scale from aggressive chemical vapors.
- Do not expose the scale to extreme moisture over long periods. Turn off the power if you do not need to use the scale with other equipment.

Note:
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.
This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
Changes or modifications not expressly approved by Sartorius AG could void the user's authority to operate the equipment.

Conditioning the Scale
Moisture in the air can condense on the surface of a cold scale whenever it is brought to a substantially warmer place. If you transfer the scale to a warmer area, make sure to condition it for about 2 hours at room temperature, leaving it unplugged from AC power. Afterwards, if you keep the scale connected to AC power, the constant positive difference in temperature between the inside of the scale and the outside will practically rule out the effects of moisture condensation.

Checking the Geographical Data Entered for Use in Legal Metrology

Preparation
(See also the "Device Information" menu items listed under "Operating Menu Overview" in the chapter entitled "Configuring the Combics".)

- ● Press (I/⏻) to turn on the Combics
- ● Activate the Setup program: Press the (SETUP) key
- > SETUP is displayed
- ● Select "Device-specific information": Press the ˅ soft key repeatedly; press the > soft key to confirm
- ● Specify WP1 or WP2 for the weighing platform in question: Press the ˅ soft key repeatedly; press the > soft key to confirm
- > View geographical data (configured prior to verification), for example:
  Latitude (in degrees): 51 [4]
  Elevation (in meters): 513 [5]
  or
  Gravitational acceleration (in m/s^2): 9.810 [6]

The scale can be used in legal metrology anywhere in Germany if the geographical data is as follows:

- Latitude: 51.00 degrees
- Elevation: 513 m

This data corresponds to the following value:
Gravitational acceleration: 9.810 m/s^2

These values are calculated for Germany based on a mean value for the Earth's acceleration. The greater the precision of the geographical data entered, the greater the precision achieved with the weighing instrument; the tolerance range, however, is restricted accordingly (see above).

The tolerances ranges, for example for a scale with 3000 e, are as follows:

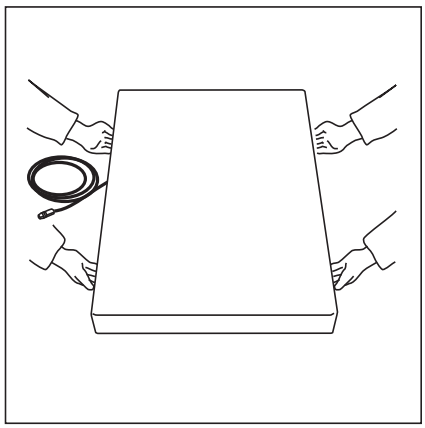
- ± 100 for the latitude, and
- ± 200 for the elevation above sea level.

⚠ If used outside the specified zone, the scale must be re-verified for use in legal metrology. Please contact an authorized service technician.

Seal on Indicators Verified for Use in Legal Metrology in the EU*

EU legislation requires that a control seal be affixed to the verified device. The control seal consists of a sticker with the "Sartorius" logo. This seal will be irreparably damaged if you attempt to remove it. If the seal is broken, the validity of the verification becomes null and void, and you must have your scale re-verified.

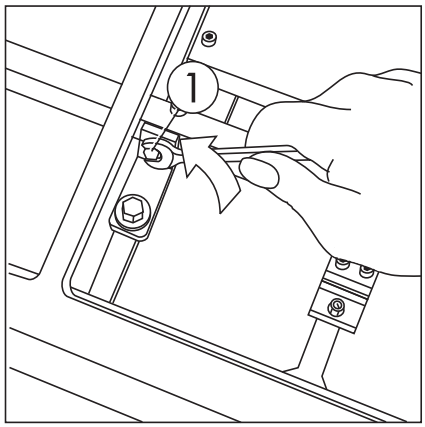
* including the Signatories of the Agreement on the European Economic Area



Unpacking the Platform

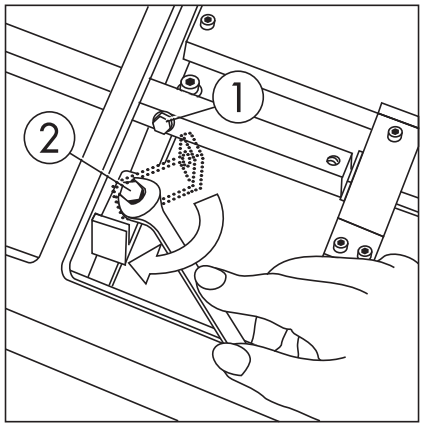
Important note:
These instructions apply to platforms that are 60 x 80 cm and larger.

- Remove the weighing platform and weighing pan from the packaging.
- When transporting or lifting the device, hold the unit on the longer sides and observe the safety precautions (wear safety shoes and gloves if necessary).
- Remove any plastic wrapping, packaging strips and styrofoam.



Removing the Transport Locking Device

- Bring the scale to the location where it will be used and remove the weighing pan.
- Loosen the transport locking device by removing screw 1.



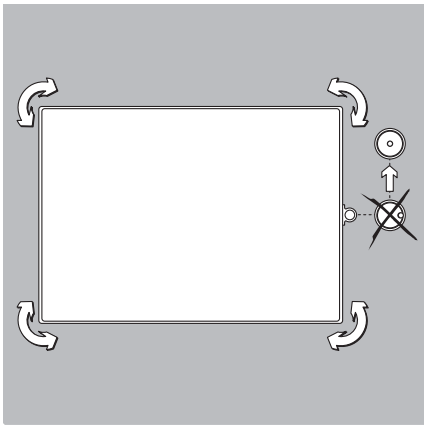
- Loosen screw 2, turn the fastening bracket by 180° and then tighten screw 2.
- Tighten screw 1 again at the lever.

Important Note Regarding Transport of the Weighing Platform

⚠ Be sure to refasten the transport locking device before transporting the weighing platform.

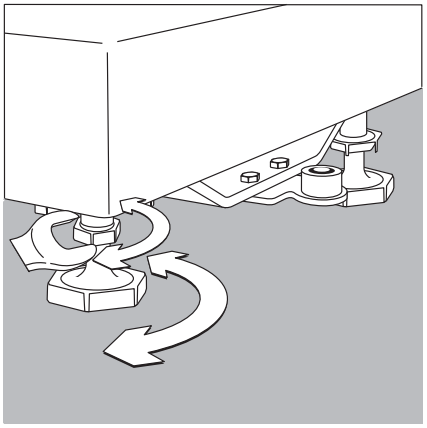
Level the weighing platform at the weighing location using the adjustable feet so that the air bubble is centered in the level indicator circle. Check that all four adjustable feet are in contact with the surface.

The load must be equally distributed over all four leveling feet.



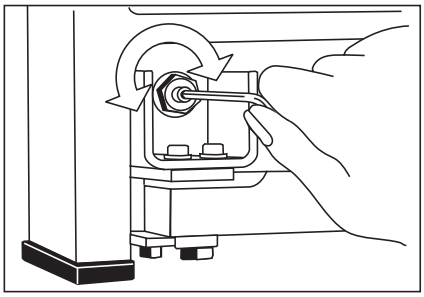
Leveling the Weighing Platform
Purpose:
- To compensate for uneven areas at the place of installation
- To ensure that the equipment is placed in a perfectly horizontal position for consistently reproducible weighing results
Always level the weighing platform again any time after it has been moved to a different location.

● Level the weighing platform using the four leveling feet. Turn the feet until the air bubble is centered in the level indicator.



● Check to ensure that all four leveling feet rest securely on the work surface.
> The load must be equally distributed over all four feet
● Loosen the lock nuts on the leveling feet using a open-end wrench (spanner).
> Adjusting the leveling feet:
To raise the weighing platform, extend the leveling feet (turn clockwise).
To lower the weighing platform, retract the leveling feet (turn ounterclockwise).

● After leveling the weighing platform, tighten the lock nuts as follows:
Small platforms (1 load cell): against the platform frame
Large weighing platforms (4 load cells): against the platform foot



● Remove the load plate
● Loosen the locknuts on the leveling feet using a 17 mm open-end wrench (spanner)
> Small platforms (1 load cell):
against the platform frame
Large weighing platforms (4 load cells):
against the platform foot

● Extend or retract the leveling feet using a 5 mm Allen wrench (key)

● After leveling the weighing platform, refasten the locknuts securely against the platform frame

● Replace the load plate

Checking the Geographical Data Entered for Use in Legal Metrology (for CW* Models Only):
Preparation
(See also the "Device Information" menu items listed under "Operating Menu Overview" in the chapter entitled "Configuring the Combics".)
● Press (I/⏻) to turn on the Combics
● Activate the Setup program:
Press the (SETUP) key
> SETUP is displayed
● Select "Device-specific information":
Press the ˅ soft key repeatedly;
press the ˃ soft key to confirm
● Specify WP1 or WP2 for the weighing platform in question:
Press the ˅ soft key repeatedly;
press the ˃ soft key to confirm
> View geographical data (configured prior to verification), for example:
Latitude (in degrees): 51.4
Elevation (in meters): 513
or
Gravitational acceleration (in m/s²): 9.810
The scale can be used in legal metrology anywhere in Germany if the geographical data is as follows:
- Latitude: 51.00 degrees
- Elevation: 513 m
This data corresponds to the following value:
- Gravitational acceleration: 9.810 m/s²
These values are calculated for Germany based on a mean value for the Earth's acceleration. The greater the precision of the geographical data entered, the greater the precision achieved with the weighing instrument; the tolerance range, however, is restricted accordingly (see above).
The tolerances ranges, for example for a scale with 3000 e, are as follows:
- ± 100 for the latitude, and
- ± 200 for the elevation above sea level.

⚠ If used outside the specified zone, the scale must be re-verified for use in legal metrology. Please contact an authorized service technician.

Indicators Verified for Use in Legal Metrology in the EU*
EU legislation requires that a control seal be affixed to the verified device. The control seal consists of a sticker with the "Sartorius" logo. This seal will be irreparably damaged if you attempt to remove it. If the seal is broken, the validity of the verification becomes null and void, and you must have your scale re-verified.

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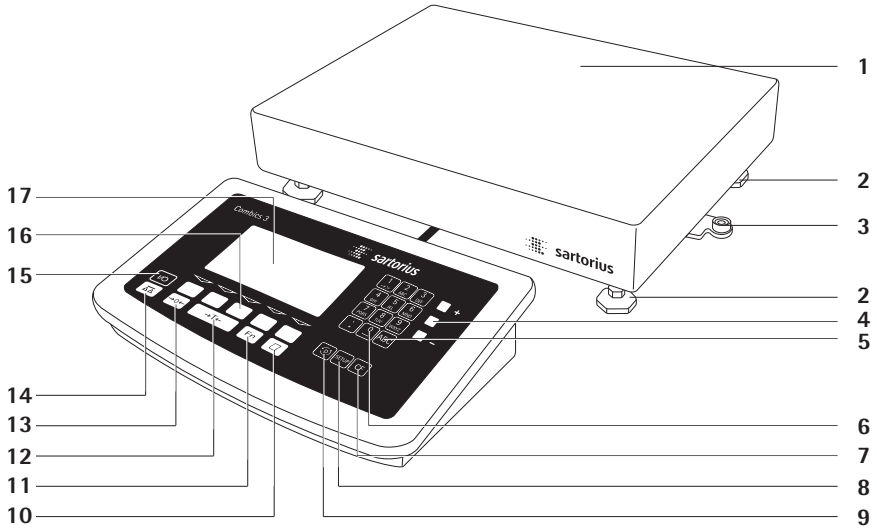
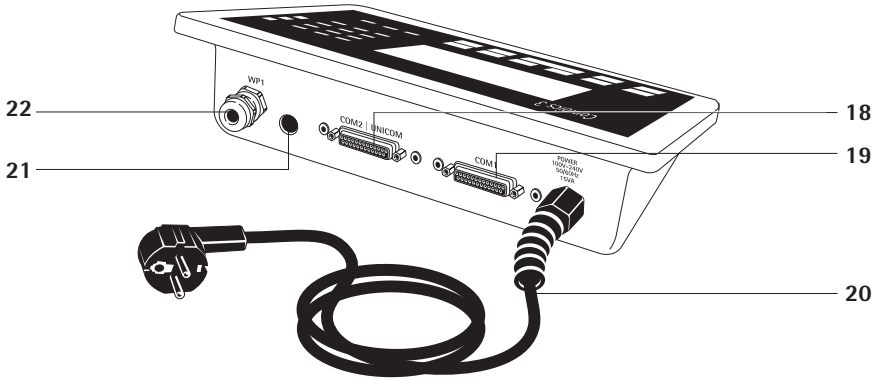
General View of the Equipment

Combics 3

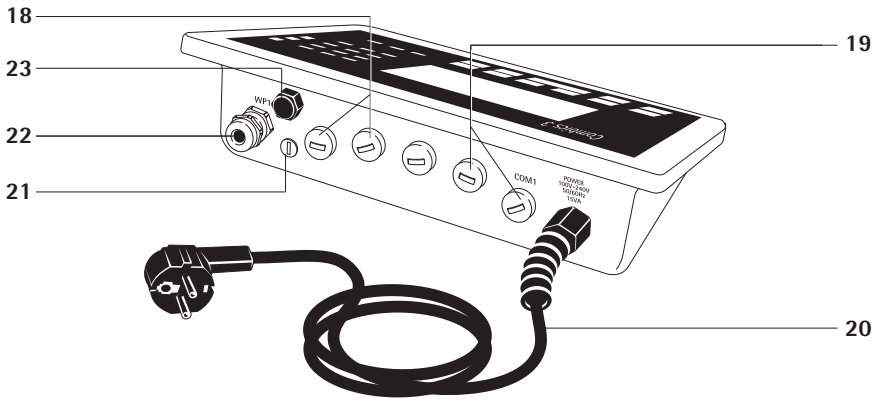


1 Load plate
2 Leveling feet
3 Level indicator
4 LEDs for checkweighing and classification
5 Toggle to alphabetical input
6 Alphanumeric keypad
7 CF key (clear function)
8 Settings:
Access Setup program
9 Toggle to the application program | application-specific information
10 Data output key
11 Gross/net; 2nd unit or 10x higher resolution (depending on the settings)
12 Tare key
13 Zero key
14 Toggle to different weighing platform
15 On/off key
16 Function keys
17 Graphic-capable dot-matrix display

Rear view: CW3P models

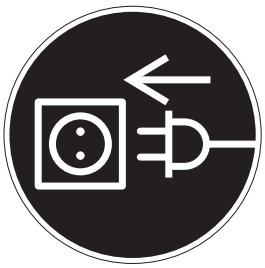


Rear view: CW3S | CW3FS | CH3E | CH3G



Rear View

18 COM2 | UniCOM interface
19 COM1: RS-232 interface
20 Power cord with country-specific plug
21 Menu access switch (standard operating mode or legal metrology mode)
22 Connector for weighing platform
23 Vent valve; torque: 1.5 Nm



Connecting the Combics to AC Power

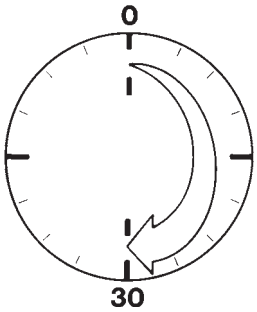
- Check the voltage rating and the plug design.

○ The scale is powered through the pre-installed power cord. The power supply is built in to the scale, which can be operated with a supply voltage of 100V to 240V.
Make sure that the voltage rating printed on the manufacturer's ID label is identical to that of your local line voltage. If the voltage specified on the label or the plug design of the AC adapter do not match the rating or standard you use, please contact your Sartorius office or dealer.
The power connection must be made in accordance with the regulations applicable in your country.

- To power a protective class 1 device, plug the power cord into an electrical outlet (mains supply) that is properly installed with a protective grounding conductor (protective earth = PE).

Safety Precautions
If you use an electrical outlet that does not have a protective grounding conductor (protective earth), make sure to have a certified electrician install equivalent protection according to the installation requirements valid in your country. Make sure the protective grounding effect is not neutralized by use of an extension cord that lacks a protective grounding conductor.

Connecting Electronic Peripheral Devices
- Make absolutely sure to unplug the scale from AC power before you connect or disconnect a peripheral device (printer or PC) to or from the interface port.



Warmup Time
To deliver exact results, the scale must warm up for at least 30 minutes after initial connection to AC power or after a relatively long power outage. Only after this time will the scale have reached the required operating temperature.

Using Equipment Verified as Legal Measuring Instruments in the EU*
○ Make sure to allow the equipment to warm up for at least 24 hours after initial connection to AC power or after a relatively long power outage.

Connecting the External Rechargeable Battery Pack (Accessory YRB10Z)

⚠ Disconnect the equipment from AC power (unplug the AC adapter)

- Installation
CW3P models: Connect a 25-pin D-Sub male connector (connecting cable YCC02-RB01) to the COM2 port
CW3.S models: Please see "Pin Assignment Charts" in this manual
(implemented via the YCC02-RB02 connecting cable or as Option L2)

Operation
– Hours of operation: up to 40, depending on the weighing platform connected; without options. The Combics automatically switches to battery operation whenever there is a power shortage or the power is cutoff. Once the mains power supply is restored, the Combics automatically switches back to normal operation.

Battery symbol

Battery fully loaded: 

Battery empty: 

* including the Signatories of the Agreement on the European Economic Area

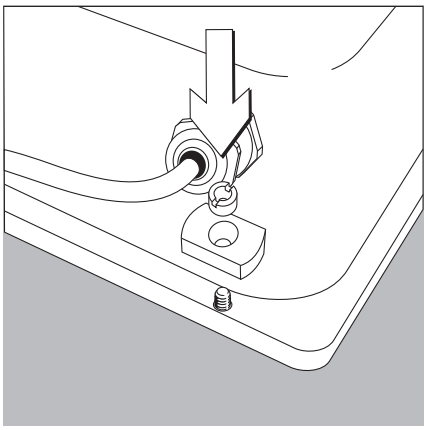
Connecting a Bar Code Scanner (Accessory YBR02CISL)

⚠ Disconnect the equipment from AC power (unplug the AC adapter)

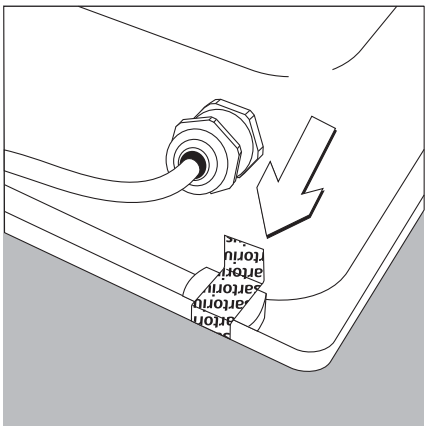
- Installation
  For model CW3P:
- Connect a 25-pin D-Sub male connector to the COM 2 (UniCOM) port
- To connect both a bar code scanner and an external rechargeable battery, please use the YTC01 T-connector.

For model CW3S: please see "Pin Assignment Charts" in this manual (implemented via the YCC02-BR02 connecting cable or as Option M8)

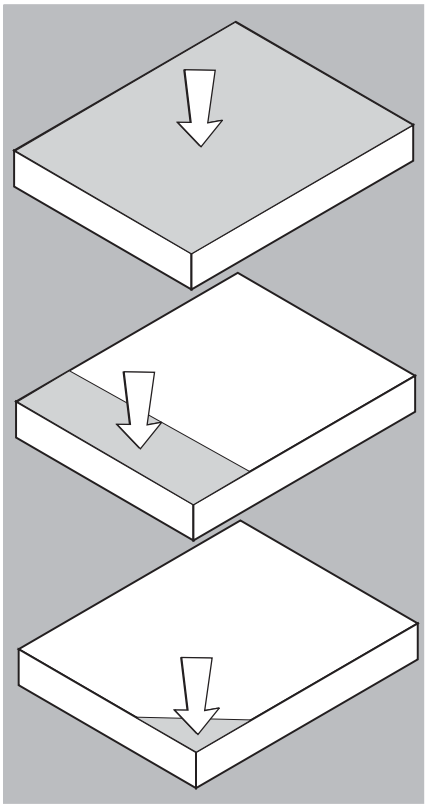
Installing the Verification Adapter for Use in Legal Metrology (on verifiable models only)



- Remove the nut located on the back of the indicator
- Use the slotted screw to install the adapter plate



- Affix the verification seal over the adapter



Operating Tolerances
Never exceed the maximum capacity of the weighing platform.
The maximum loading capacities of the weighing platforms are listed in the table below, and depend on the position of the load on the platform:

Platform size	Center	Side	Corner
320 × 240	50	35	20
400 × 300	130	85	45
500 × 400	300	200	100
500 × 400 (P*)	600	400	200
650 × 500 (S**)	450	300	150
800 × 600 (P*)	1200	800	400
800 × 600 (S**)	900	600	300
800 × 800	4500	3000	1500
1000 × 800	4500	3000	1500
1000 × 1000	4500	3000	1500
1250 × 1000	4500	3000	1500
1500 × 1250	4500	3000	1500
1500 × 1500	4500	3000	1500
2000 × 1500	4500	3000	1500

* Steel
** Stainless Steel

For CH3E models:
Platform dimensions: 300 x 400 Loading capacity (center) in kg: 130

For CH3G models:
Platform dimensions: 560 x 450 Loading capacity (center) in kg: 130

Platform dimensions: 800 x 600 Loading capacity (center) in kg: 600

Shock Resistance
The weighing platform features a rugged construction, but you should not allow objects to fall onto the weighing pan. Also avoid bumps to the side of the unit and shocks. The weighing platform withstands the loads specified in standard DIN 1EC68, Part 2-27.

Important Note About Planning Structures for Attachment to the Weighing Platform
The weighing platform is suitable for installation in systems. The scale drawings should be used as the basis for selecting any necessary structures to be affixed to the platform. Use the YAS041S fastening set to secure the weighing platform.

Moving or rotating parts on the weighing pan must be designed so that they do not influence the weighing results. For example, rotating parts must be balanced. The weighing pan must have clearance on all sides to prevent any falling objects or dirt from creating a connection between the weighing platform and any permanent structures.

Cables and hoses between the weighing platform and other devices must not exert any force on the weighing platform. These cables must not touch the weighing pan.
(For CW* models only):
When setting up systems in hazardous areas (zone 2 or 22), be sure to observe and comply with the relevant regulations (e.g., EN60079-14).
Pay special attention that electrostatic charges resulting from moving parts (e.g., conveyors) are avoided or discharged.

Preload Range (Zero-Point Range)
The weight of any structures that are permanently mounted on the weighing platform constitutes the “preload.” The preload is electronically compensated in the weighing platform so that the entire weighing range is available and so that the scale can be zeroed or calibrated (using external weights).

Larger preloads will lead to a reduction of the weighing range. The weight on the scale may not fall below the following weighing range values:

- At least 30 kg of the weighing range must remain for models CH3G-150 1G-H
- At least 60 kg of the weighing range must remain for models CH3G-300 1G-H

⚠ You must always set the preload prior to verifying the scale for legal metrology.

All structures must be mounted on the weighing platform before it is connected to AC power.

Operating Design

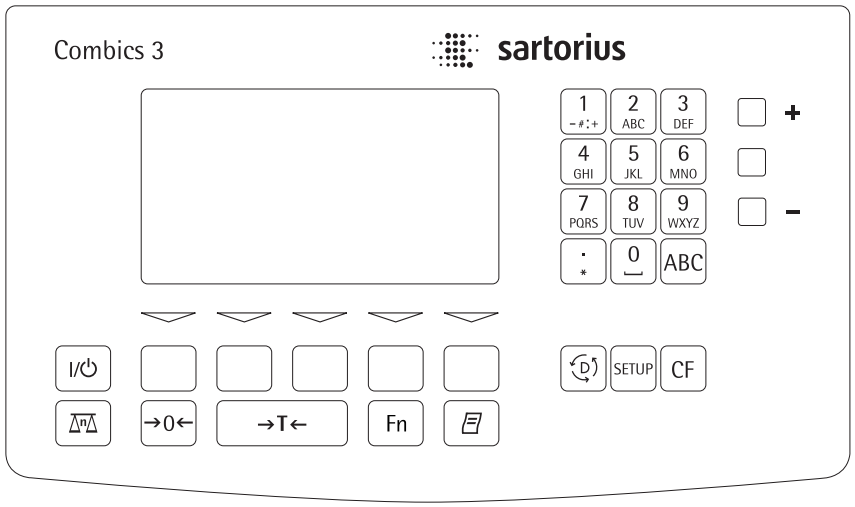
With Combics 3 you can

- collect weight values from two weighing platforms
- use application programs to calculate and display results
- assign codes to identify the samples weighed

Before you begin, you need to configure your Combics complete scale for your requirements. This is achieved by setting parameters in the operating menu (for example, to configure a connected printer). You can then begin operation, with functions active for storing and calculating weighing data.

The description of the operating design is divided into the following sections:

- Data Input
- Display Modes
- Error Codes
- Data Output
- Saving Data



Operating Elements: Combics 3

Data Input
There are a number of options for entering data:

- Through the indicator keypad (e.g., with the [0], [1], [2]... [9] keys)
- Through the weighing platform (e.g., tare values)
- Through the digital input/output interface
- Through the COM port
- Through a bar code scanner or external keyboard

Keypad Input

Labeled Keys
These keys always have the function indicated by the label, but the functions might not be available at all times. Whether a function is available at a given time depends on the operating state of the scale and the menu settings active at that time. Some of the keys have a second function, activated by pressing and holding the key for longer than 2 seconds.

[I/⏻] On/off key
Turn the Combics on and off or switch it to the standby mode. In standby mode, the display shows OFF.

[⚖] Toggle the display between connected weighing platforms. With two weighing platforms connected, this key toggles the display between the two readouts.

[→0←]
- Zero the scale
- Cancel a calibration/adjustment procedure

[→T←]
- Press briefly (< 2 sec): Tare the weighing platform
- Press and hold (> 2 sec): Activate calibration/adjustment

[Fn] Toggles the display between:
- first and second weight unit, or
- gross and net values, or
- normal and 10-fold higher resolution,

depending on your settings in the operating menu.

[🖹]
- Press briefly: Print
- Press and hold: Print GMP footer

[D]
- Press and hold: Toggle to info mode (only when an initialized application is active)

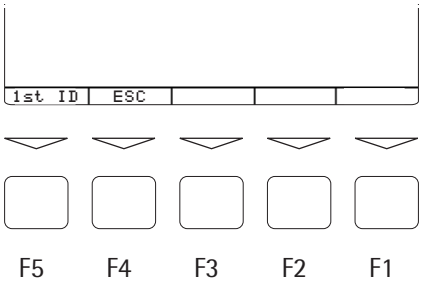
[SETUP]
- Access to Setup program
- Exit the Setup program

[CF]
- Press briefly: Quit application program, delete input character
- Press and hold: Delete entire input string

[0], [1], [2]... [9], [·]
Enter numbers, letters and other characters

[ABC] Toggle between numeric and alphabetic input

Function Keys (Soft Keys)
The current function of a given soft key is indicated in the last line on the display (footer). Functions are indicated by abbreviated texts or symbols .



Texts (Examples)

1st ID: Store the first ID line

ESC: Cancel input

Symbols in the footer:

<<: Return to initial state

<: Go one level higher

>: Show items under selected entry

^: Move up one position in I/O window

v: Move down one position in I/O window

↵: Confirm selected parameter setting

Numeric Input Through the Keypad

● Enter numbers one digit at a time:
Press [0], [1], [2]... [9] as needed

● Store input:
Press the required key (e.g., press [→T←] to store manual tare input)

○ Deleting a digit:
Press [CF] briefly

○ Deleting entire input string:
Press and hold [CF] (> 2 sec)

Text Input Through the Keypad

● Press the [ABC] key

> 'ABC' is displayed

● Press the key on which the desired letter is printed repeatedly, until that letter is displayed (please note that keys can activate other characters in addition to those shown on the key)

○ If the next letter or character you wish to enter is activated by the same key as the previous character, press the ↵ soft key or wait 2 seconds before entering the next character.

○ Entering a space: Press the [0] key

○ Entering punctuation or special characters:
Press the [1] key or [·] key repeatedly until the desired character is displayed, and then press the ↵ soft key to insert it in the string.

○ Deleting characters: Press [CF] briefly

○ Deleting entire input string:
Press and hold [CF] (> 2 sec)

○ Exit text input mode and return to numeric input mode: Press the [ABC] key

> 123 is displayed

● Store input:
Press the required soft key
(for example, **1st ID**)

Input Through the Weighing Platform
You can store the weight on the weighing platform; for example, as a tare weight (press the [→T←] key)

Input Through the Digital I/O Port
An input control line is available for use with all application programs, for connecting a remote hand switch or foot switch. Configure this input line in the Setup program, under
Device parameters - Control input
to assign one of the following functions to the remote switch:

- **Print key**
- **Print key - long**
- **Tare key**
- **Tare key - long**
- **Fn key**
- **WP toggle key**

Input Through the COM Port
The Combics scale is equipped with a simple ASCII interface (SBI) for data transfer. The functions are described in detail in the chapter entitled "Operating the Combics", under "Data Output Functions".

Input Through a Bar Code Scanner or External Keyboard
You can use a bar code scanner or a keyboard to enter alphanumeric values in the Combics. Generally, you can use any bar code format that is compatible with the scanner connected. Like values entered through the keypad, barcode and keyboard input is handled as:

- Weight values for tare memory
- Reference weight values for the Counting, Neutral Measurement and Weighing in Percent applications
- Numeric values
- Product identifiers

You can also configure your Combics 3 to activate a function when a particular bar code is scanned, or to display the value represented by the bar code without initializing any function. This feature is configured in the Setup program, under:
`Device parameters - Bar code`

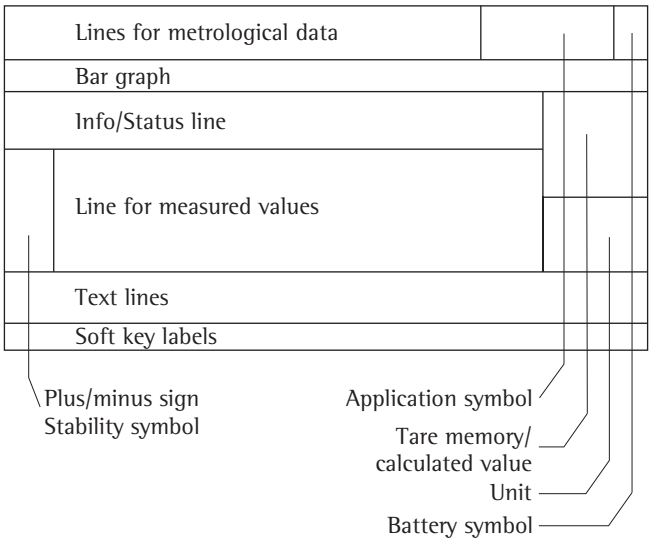
Select `Reference`, `Tare` or `ID1` to use the value represented by the bar code as a reference, tare or ID1 value.

Bar code values can include a designator specifying that the value scanned is designated as a tare value, for example, or an ID4 value. If you select the menu setting `Input without activating function`, the content of bar code is displayed but no function is activated, regardless of the designation. The next key pressed determines which function is to be activated (e.g., "Set tare value").

If you select `Input`, the value scanned is displayed if it has no (recognizable) designation assigned. In this case, no function is activated. The next key pressed determines which function is to be activated.

If you select `External keyboard`, you can enter data through an external keyboard; the data is handled in the same manner as keypad input.

Example of the information shown on the CW indicator:



Display Modes

There are two display modes: one is used during weighing and the other when working with the operating menu (Setup program).

Display Mode During Weighing (Main Display)
This display is subdivided into nine sections.

Lines for metrological data:
These lines show:

`WP1/2`	Active weighing platform
`R1/2`	Current weighing range of the active weighing platform (with multiple range scale connected)
`Max`	Upper limit of the weighing range in the active weighing platform
`Min`	Lower limit of the weighing range in the active weighing platform (verified models only)
`e`	Verification scale interval the active weighing platform (verified models only)
`d`	Readability/index of the active weighing platform

Application symbols:
This field shows a symbol indicating the selected application program (e.g., ⩓ for the Counting application). The other symbols that can be shown here include:
Printing mode active
GMP printing mode active

Battery symbol:
A battery symbol is shown in this field when the Combics 3 is operated with a remote rechargeable battery: The symbol is filled in when the battery is fully charged; when the battery is empty, only an outline is shown.

Bar graph:
The bar graph shows the percentage of the weighing platform's capacity that is "used up" by the load on the scale (gross value). When the Checkweighing application is active, the tolerance limits are also shown (calculated value). The following symbols may be displayed here:

0%	Lower limit
100%	Upper limit
	Bar graph with 10% markings
	Minimum for the Checkweighing application
	Target for the Checkweighing application
	Maximum for the Checkweighing application

Plus/minus sign:
This field shows either a plus or minus sign (+ or −) for weight values (or calculated values), or the o symbol when the weighing platform is zeroed or tared.

Measured value/result line:
This field shows weight values, calculated values and input characters.

Unit and stability:
When the weighing system reaches stability, the weight unit or calculation unit is displayed here.

Tare in memory, calculated values:
A symbol here indicates that a tare value is stored or that the result is a calculated value.

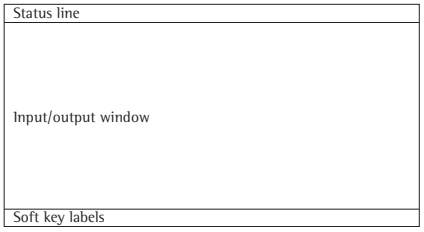
The following symbols may be displayed here:

⚠	Calculated value (cannot be used in legal metrology)
NET	Net value (gross weight minus tare)
B/G	Gross value (net value plus tare)

Text lines:
The text lines show operator support information, such as the name of the active program, user guidance prompts, etc.

Soft key labels:
This line shows the abbreviations or symbols that indicate soft key functions

Display Mode for Configuration and Information (Setup)
This display is divided into three sections.

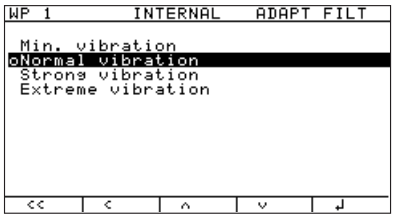


Line for operating status:
The operating status line indicates the function of the current screen page. In the Setup program, this line shows the "path" to the information displayed

Input and output window:
This section shows detailed information (e.g., on the selected application) or a list of options for selection. A selected item is displayed inversely (white letters on a black background). You can enter letters and numbers in active fields here.

Soft key labels:
See the description above, under "Function Keys (Soft Keys)" (page 13).

Example: Setup: Device parameters: WP-1: Internal: Adapt filter:



o This symbol indicates the currently active menu setting

Setting parameters:

- Press the ^ or v soft key repeatedly until the desired parameter is selected (inverse display)
- Confirm the setting: Press the ↵ soft key
- Exit the Setup program: Press the SETUP key

Error Codes

- If a key is inactive, this is indicated as follows:
  - The error code "-" and/or "No function" is displayed for 2 seconds. The display then returns to the previous screen content.
  - An acoustic signal (double-beep) is emitted.
- Temporary errors are indicated by an error code, shown in the measured value/result line for 2 seconds (for example, Inf 09).
- Fatal errors are indicated by an error code displayed steadily in the measured value/result line (for example, Err 101), until you turn the Combics off and then on again (reset).

This process is the same for all operating modes (weighing, application programs and Setup program).
Error codes and messages are described in detail in the chapter entitled "Error Codes."

Data Output

You can choose from four forms of data output:

- Printer
- Digital input/output interface
- COM port
- LEDs

Printer
You can connect one or two strip printers or one or two label printers to the Combics. If you use a universal printer or a model YDP02 or YDP03 printer, you can configure interface parameters in the Setup program (baud rate, stop bits, handshake mode, data bits).
The printout can be formatted by the user. The printout consists of two user-definable header lines, up to four lines identifying the weighing data, one line for date and time, initialization data (only when using applications), serial number and results. For a strip printer, universal printer or label printer, you can also define whether a GMP header and GMP footer (field for operator signature) will be included on the printout (GMP: Good Manufacturing Practice).
These functions are described in detail in the chapter entitled "Operating the Combics", under "Data Output Functions."

You can have printouts generated at the press of a key, or automatically (dependent on stability).

For the Totalizing and Net-total applications, you can also configure summarized printouts (results) independent of individual or component value printouts.

Press the [F] key to print the settings of the current menu level on a strip printer or a universal printer.
All submenus under the current menu level are included on the printout.

Digital Input/Output Interface
The digital I/O interface is supported by the Checkweighing and Classification applications.

Checkweighing
Four data outputs transfer the following information on the weight values: "less than", "equal to", "greater than" and "set" In the Setup menu, you can configure whether the outputs are: always on; activated when the scale has stabilized; active only within the checkweighing range; activated when the scale has stabilized only if the values are within the checkweighing range, or off.

Classification
Four data outputs transfer information on the class of the load (Class 1, 2, 3, 4 or 5) and whether the minimum load is exceeded (Set). The user can define whether the output lines are always active, activated only at stability, or off. For the Checkweighing and Classification applications, you can use the "Set" output to indicate:

- The scale(s) and the Combics 3 indicator are ready to operate, or
- for Checkweighing: Set
- for Classification: Minimum load exceeded

For all other applications, the "Set" output indicates when the Combics 3 indicator is ready to operate.

COM Port
The Combics scale is equipped with an SBI interface for data transfer. You can define certain parameters for this interface (generate printout, time-dependent autoprint, ID codes). See "Data Output Functions" in the chapter entitled "Operating the Combics" for a detailed description of data output options.

LEDs
The Combics 3 has an integrated checkweighing display consisting of three LEDs, for use with the Checkweighing and Classification applications. These LEDs show the relationship of the current weight value to the tolerance limits in Checkweighing; with the Classification application, they indicate how the weight value is classified.

Saving Data

The parameters you select in the operating menu remain stored after you turn off the Combics.

The Combics also stores all application parameters (for example, reference values). These parameters are overwritten only when

- you turn the Combics off and then back on again

- you return to the originally selected application from a different one (for example, if you switch from Counting to Averaging, the values previously stored for the Counting application are restored)

You can restrict access to the Device parameters menu in the Setup program by assigning a password. The password is configured in the Setup program, under:
`Device parameters - Password`

Configuring the Combics

Purpose
You can configure the Combics 3 to meet individual requirements by entering user data and setting menu parameters in the Setup program.

Features
The operating menu parameters are divided into the following categories (highest menu level):

- Application parameters
- Fn key function
- Device parameters
- Device-specific information (Info)
- Language

When you use the scale in legal metrology, access to parameters is restricted.

Factory setting
Parameters: The factory-set configurations are identified by an "o" in the list starting on the next page.

Setting the Language

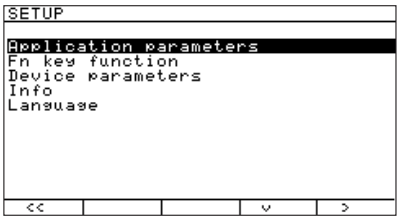
You can choose from five languages for the display of information:

- German
- English (factory setting)
- English with U.S. date/time format
- French
- Italian
- Spanish

Example: Selecting "U.S. Mode" for the Language

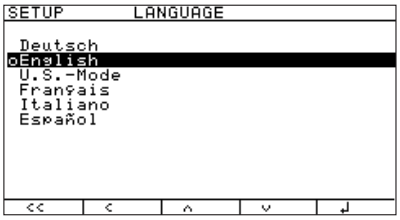
I/⏻ — Turn on the Combics

SETUP — Activate the Setup program



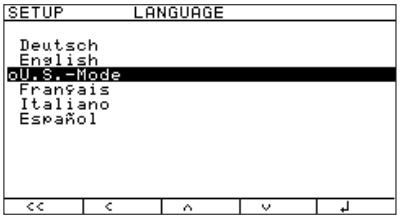
Soft key v (repeatedly), Select "Language"

Soft key > and confirm



Soft key ^, Select "U.S. Mode"

Soft key ↵ Save the new setting

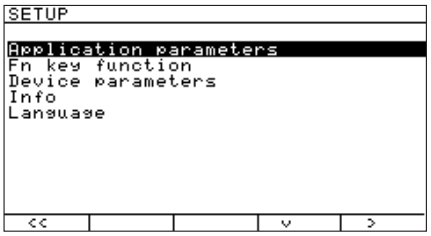


Soft key << Exit the Setup menu

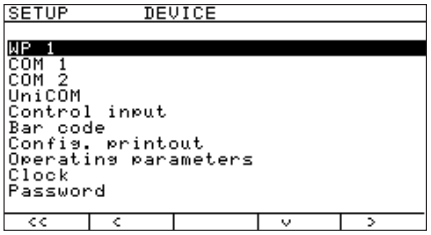
Navigating in the Operating Menu (Examples)
Example: Adapting the Combics to ambient conditions at the place of installation; menu item: “Very unstable conditions” for weighing platform WP1.

I/⏻ — Turn on the Combics

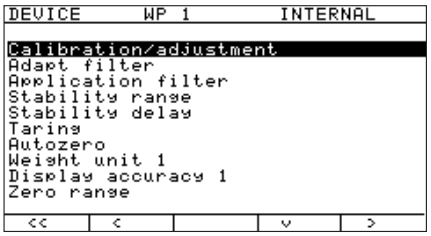
SETUP — Activate the Setup program



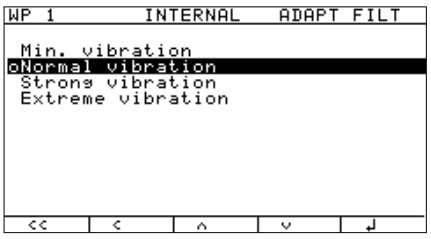
Soft key v, **Soft key >** — Select `Device parameters` and confirm



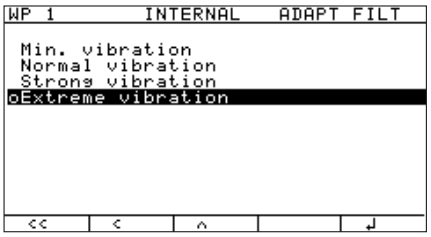
Soft key >, **Soft key >** — Confirm weighing platform `WP-1` and then confirm `Internal`



Soft key v, **Soft key >** — Select `Adapt filter` and confirm



2× soft key v, **Soft key ↵** — Select `Very unstable` and save



To continue: soft key <, **Soft key < <** — Change other menu settings if desired, or Exit the Setup menu

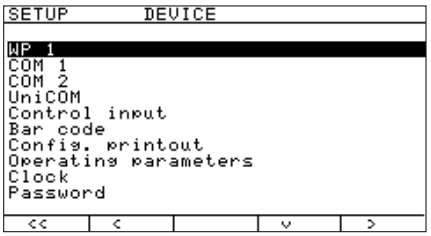
Defining Password Protection for the Operating Menu: Entering, Changing or Deleting a Password
You can define a password to protect the `Application parameters` and `Device parameters`. To do this, enter a password known only to authorized personnel. Without the password, only a few of the menu items can be accessed (Fn key, Info, language).

Example: Entering, changing or deleting the password "ABC1"

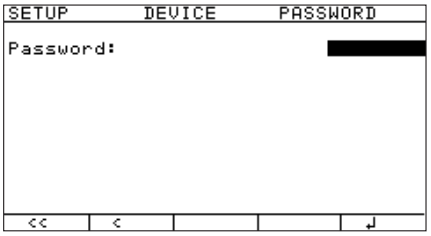
I/⏻ — Turn on the Combics

SETUP — Activate the Setup program

2× soft key v, **Soft key >** — Select `Device parameters` and confirm



Soft key v repeatedly, **Soft key >** — Select `Password` and confirm

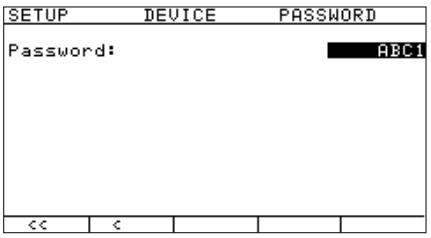


ABC, 2 **(ABC), Soft key ↵;** — Enter password: "ABC1" (max. 8 characters)

2× 2 **(ABC), Soft key ↵;** — Confirm input (wait 2 seconds or press ↵ soft key)

3× 2 **(ABC), Soft key ↵;** — Confirm password

ABC, 1**, Soft key ↵** — **If necessary: delete password**: Press CF and confirm with soft key ↵



To continue: soft key < — Change other menu settings if desired, or
Soft key < < — Exit the Setup menu

Printing Parameter Settings
To generate a printout of the settings on the current menu level:
Press the [F] key

> Printout (example)
The maximum width of this printout is 20 characters.

```
--------------------
12.01.2002     09:46
Model  CW3P1-6ED-LCE
Ser.no.     12345678
Vers.    1.1010.10.2
BVers.      01-26-01
--------------------
SETUP
      DEVICE
--------------------
 WP-1
  Internal
 COM1
  Data communication
   SBI
    Baud rate
           1200 baud
    Parity
                 Odd
    Number of stop b
           1 stop bi
      Handshake mode
  Hardware 1 charact
    Number of data b
              7 bit
    Data output
 Printout, printer 1

    Line format
 For other apps. (22
 characters)
 COM2
                 Off
 UNICOM
                 Off
 Control input
          Print key
 Bar code
       Reference val
 Printout
  Headers
   Line 1:

   Line 2:

  ID codes
   ID1:
                 123
   ID2:
                 456
   ID3:
                 ID3
   ID4:
                 ID4
  ISO/GLP/GMP
                 Off
  Date/time
      Date with time
   Once at stability
                 Off
```

etc.

Operating Menu Overview (Parameters)

o = Factory setting
√ User-defined setting

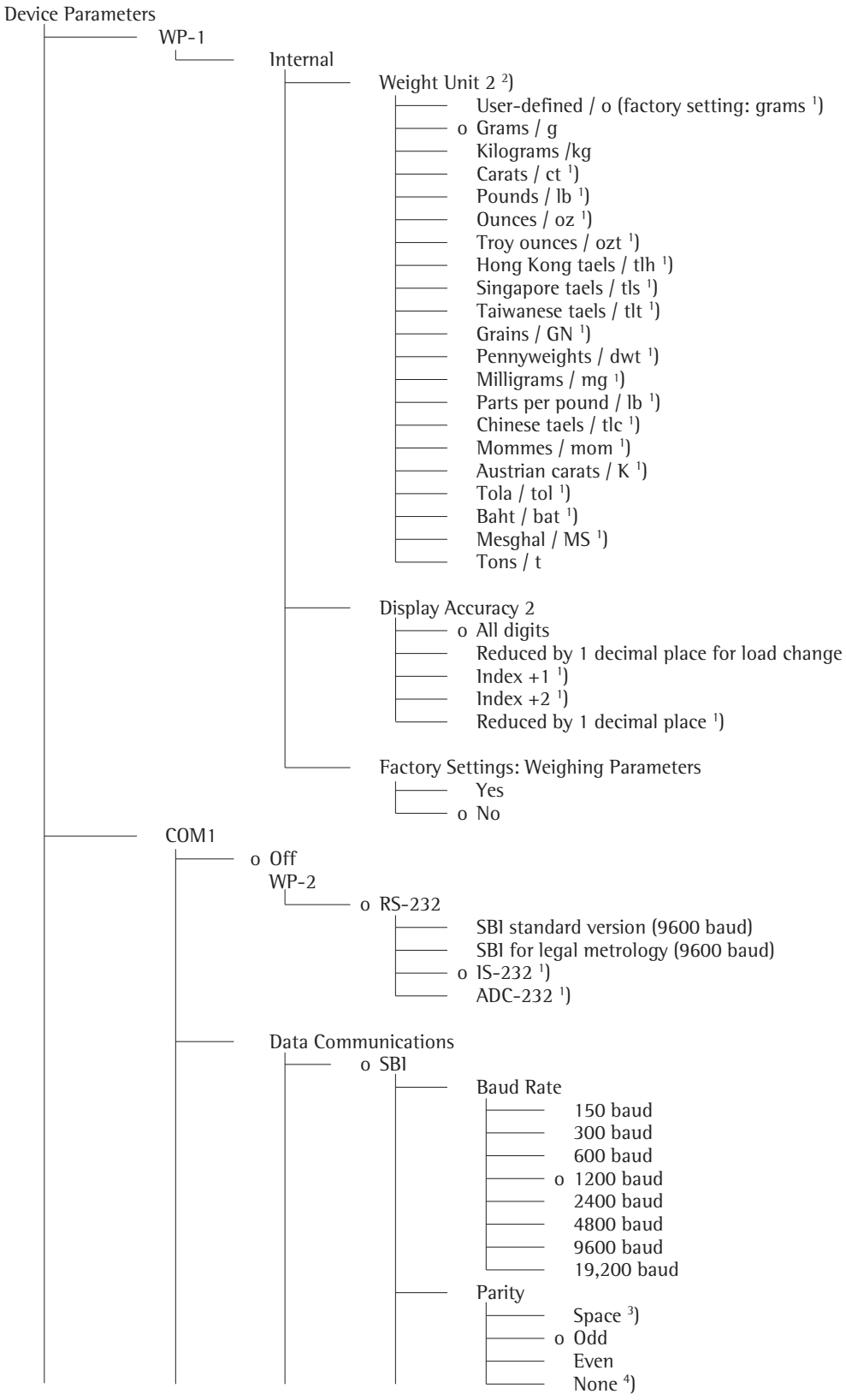
- Setup
  - Application parameters: Please refer to the operating instructions for Combics 3 “Basic Application Programs”
  - Fn-key
    - Off
    - o Gross/net toggling
    - Toggle weight units
    - 10 × higher resolution
  - Device Parameters
    - WP-1
      - Off
      - RS-232 [1])
        - SBI standard
        - SBI verifiable
        - o IS-232
        - ADC-232
      - Internal
        - Calibration/Adjustment
          - CAL Key Function
            - o Ext. cal./adjust.; default weight
            - Ext. cal./adjust.; weight can be selected
            - Key blocked
          - Calibration/Adjustment Sequence
            - Calibration with automatic adjustment
            - o Calibration with adjustment triggered manually
          - isoCAL Function
            - o Off
            - Adjustment prompt
          - External Calibration/Adjustment [2])
            - o Accessible
            - Blocked
          - External Weight
            - Cal./adj. weight
        - Adapt Filter
          - Min. vibration
          - o Normal vibration
          - Strong vibration
          - Extreme vibration
        - Application Filter
          - o Final readout
          - Filling mode
          - Low filtering
          - W/o filtering
        - Stability Range
          - 1/4 digit
          - 1/2 digit
          - o 1 digit [2])
          - 2 digits [2])
          - 4 digits [2])
          - 8 digits [2])

[1]) = function will be made available in future

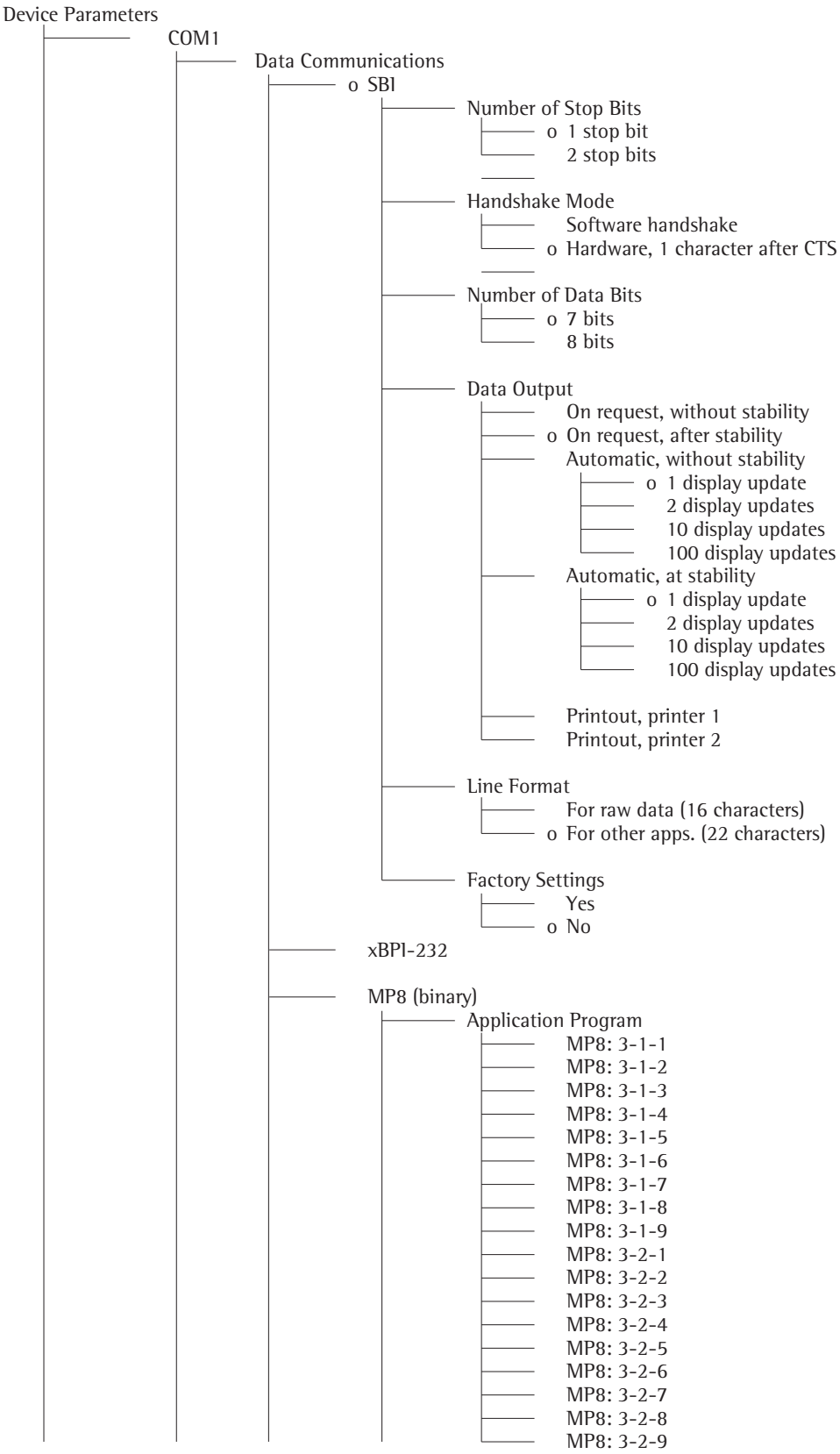
[2]) = not available on scales verified for use in legal metrology

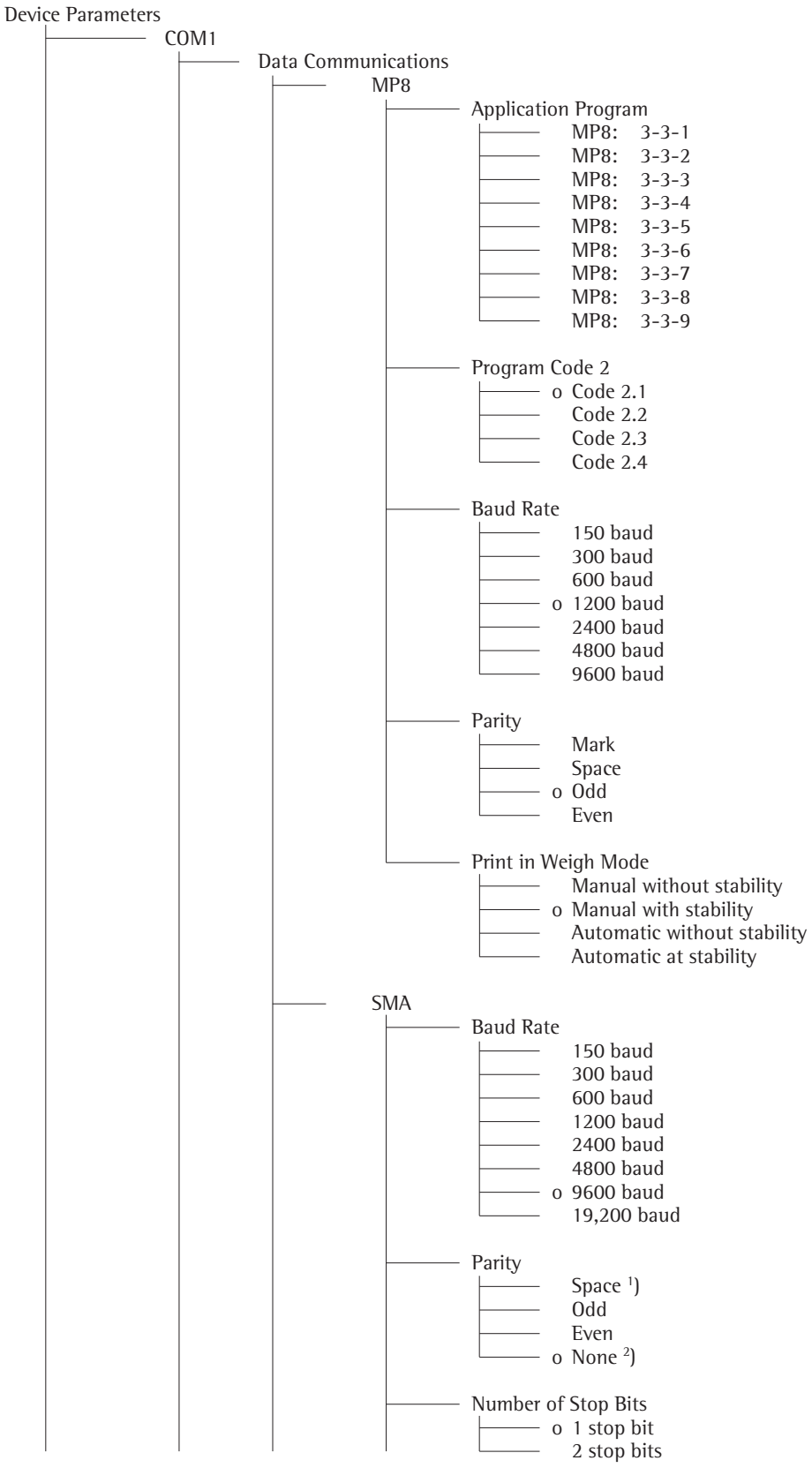
- Device Parameters
  - WP-1
    - Internal
      - Stability Delay
        - No delay
        - o Short delay
        - Average delay
        - Long delay
      - Taring [1])
        - Without stability
        - o After stability
      - Auto Zero
        - o On
        - Off
      - Weight Unit 1 [2])
        - User-defined / o (factory setting: grams [1])
        - Grams / g
        - o Kilograms / kg
        - Carats / ct [1])
        - Pounds / lb [1])
        - Ounces / oz [1])
        - Troy ounces / ozt [1])
        - Hong Kong taels / tlh [1])
        - Singapore taels / tls [1])
        - Taiwanese taels / tlt [1])
        - Grains / GN [1])
        - Pennyweights / dwt [1])
        - Milligrams / mg [1])
        - Parts per pound / lb [1])
        - Chinese taels / tlc [1])
        - Mommes / mom [1])
        - Austrian carats / K [1])
        - Tola / tol [1])
        - Baht / bat [1])
        - Mesghal / MS [1])
        - Tons / t
      - Display Accuracy 1
        - o All digits
        - Reduced by 1 decimal place for load change
        - Index +1 [1])
        - Index +2 [1])
        - Reduced by 1 decimal place [1])
      - Zero Range
        - 1 percent/max. cap.
        - o 2 percent/max. cap.
      - Zero at Power On
        - 2 percent/max. cap.
        - o 5 percent/max. cap.
      - Tare/Zero at Power On
        - o On
        - Off
        - Only zero at power on

[1]) = not available on scales verified for use in legal metrology
[2]) = depends on weighing platform model

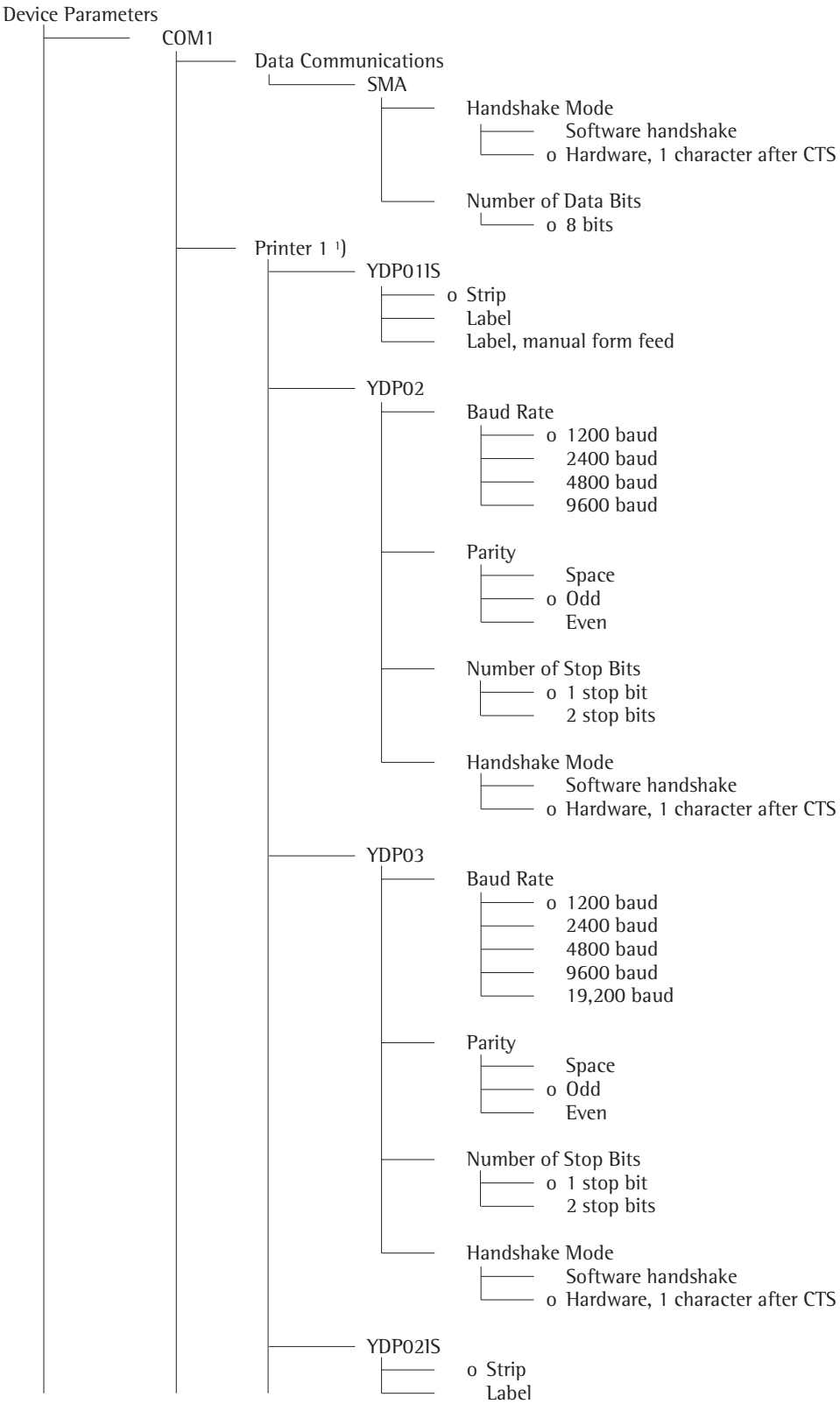


[1]) = not available on scales verified for use in legal metrology
[2]) = depends on weighing platform model
[3]) = not with 8 data bits
[4]) = not with 7 data bits

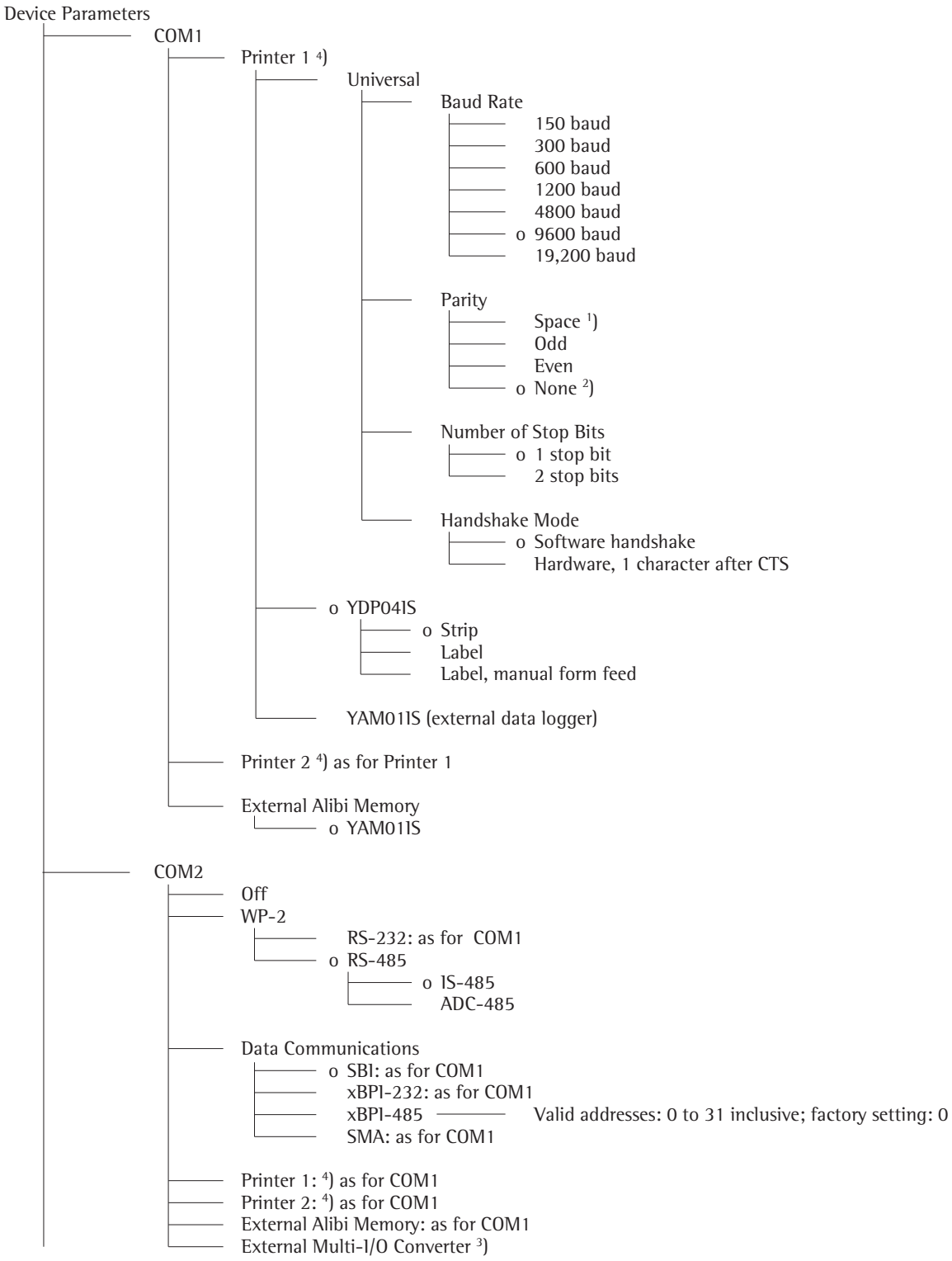

Device Parameters
COM1
Data Communications
o SBI
Number of Stop Bits
o 1 stop bit
2 stop bits
Handshake Mode
Software handshake
o Hardware, 1 character after CTS
Number of Data Bits
o 7 bits
8 bits
Data Output
On request, without stability
o On request, after stability
Automatic, without stability
o 1 display update
2 display updates
10 display updates
100 display updates
Automatic, at stability
o 1 display update
2 display updates
10 display updates
100 display updates
Printout, printer 1
Printout, printer 2
Line Format
For raw data (16 characters)
o For other apps. (22 characters)
Factory Settings
Yes
o No
xBPI-232
MP8 (binary)
Application Program
MP8: 3-1-1
MP8: 3-1-2
MP8: 3-1-3
MP8: 3-1-4
MP8: 3-1-5
MP8: 3-1-6
MP8: 3-1-7
MP8: 3-1-8
MP8: 3-1-9
MP8: 3-2-1
MP8: 3-2-2
MP8: 3-2-3
MP8: 3-2-4
MP8: 3-2-5
MP8: 3-2-6
MP8: 3-2-7
MP8: 3-2-8
MP8: 3-2-9



[1]) = not with 8 data bits
[2]) = not with 7 data bits



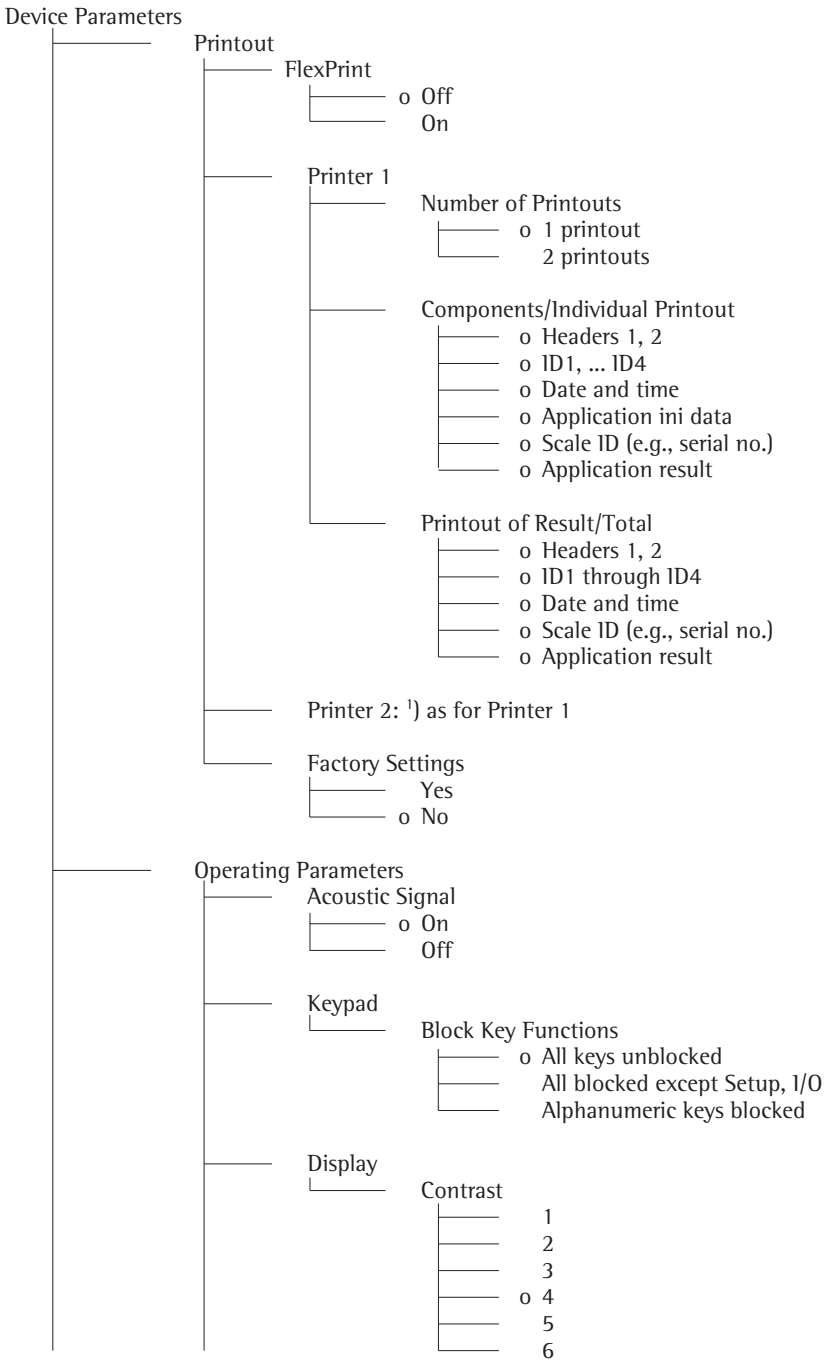
1) = max. 2 printers can be configured



1) = not with 8 data bits
2) = not with 7 data bits
3) = function will be made available in future
4) = max. 2 printers can be configured

- Device Parameters
  - UniCOM (Optional Interface)
    - o Off
    - Data Communications: as for COM1, plus:
      - o SBI: as for COM1
      - xBPI-232: as for COM1
      - xBPI-485: as for COM2
      - SMA: as for COM1
      - Profibus — Valid addresses: from 0 to 126 inclusive; factory setting: 126
      - Ethernet — Optional: Ethernet (for details, see the “Combics UNICOM Interfaces” installation instructions included in this manual)
    - Printer 1: [1]) as for COM1
    - Printer 2: [1]) as for COM1
    - Analog Output Port
      - Value Output
        - o Net value
        - Gross value
      - Error Signal
        - o High (20 mA)
        - Low (0/4 mA)
    - External Alibi Memory: as for COM1
  - Control Input (for Remote Switch)
    - o Print key
    - Print key - long
    - Tare key →T←
    - Tare key →T← - long
    - Fn key Fn
    - WP toggle key
  - Bar Code
    - o Reference value
    - Tare value
    - ID1
    - Data input
    - Input without activating a function
    - External keyboard
  - Printout
    - Headers
      - Line 1:
      - Line 2:
    - ID Codes
      - ID1:
      - ID2:
      - ID3:
      - ID4:
    - ISO/GLP/GMP-compliant Printout
      - o Off
      - For 1 application result
      - For several application results
    - Date/Time
      - o Date with time
      - Date only
    - Once at Stability
      - o Off
      - On

[1]) = max. 2 printers can be configured



[1]) = max. 2 printers can be configured

- Setup
  - Device Parameters
    - Operating Parameters
      - Display
        - Backlighting
          - o On
          - Auto shutoff acc. to timer
      - Automatic Shutoff
        - Auto off acc. to timer
        - o No automatic shutoff
      - Timer
        - o 1 + 1 minute
        - 2 + 2 minutes
        - 5 + 5 minutes
      - Main Scale
        - o WP-1
        - WP-2
      - Display Geographical Data
        - o Off
        - On
      - Factory Settings: Operating Parameters
        - Yes
        - o No
    - Clock
      - Time:
      - Date:
    - Password
      - Password:
  - Info
    - Service
      - Service date:
    - Terminal
      - Model:
      - Serial no.:
      - Version no.: (application software version)
      - Basic ID:
    - WP1
      - Model:
      - Version no.: (software version)
      - Serial no.:
      - Latitude:
      - Altitude:
      - Gravitational acceleration:
    - Flex Info
      - ID--
      - V.--
  - Language
    - Deutsch
    - o English
    - U.S. Mode
    - French
    - Italiano
    - Español

[1]) = Outputs either latitude and elevation or gravitational acceleration, depending on configuration prior to verification

Weighing

The basic weighing function is always accessible and can be used alone or in combination with application programs, such as Counting, Checkweighing, Weighing in Percent, etc.

Features

- Zero the weighing platform by pressing →0←
- Store the weight on the platform as tare by pressing →T←
- Enter a tare weight using the numeric keys (press →T← to save)
- Enter a tare weight using a bar code scanner
- Automatic taring of container weight
- Deleting tare values by entering 0 (press →T← to save)
- Press Fn to toggle the display between:
  - Gross and net values, or
  - 1st and 2nd weight unit, or
  - Normal and 10-times higher resolution

  Define the function of the Fn key in Setup, under: `Fn-key`
- Weigh with two weighing platforms
- Individual ID codes for weight values
- Print weight values:
  - Manually, by pressing
  - Automatically (see "Data Output Functions")
  - GMP-compliant printout (see "Data Output Functions")
- Restore factory default settings. Configure in Setup under: `Application: Weigh: Fty settings`

Soft Key Functions

`ID`	Enter up to four ID codes for identifying results on the printout
`ID 1`	Save the value entered as the first ID code

Preparation

- Activate the Setup program: Press the SETUP key
- Select Application Parameters: Press the > soft key
- Select "Weighing Only": Press the > soft key

Weigh only
- Minimum load for autotaring
  - 1 digit
  - 2 digits
  - 5 digits
  - o 10 digits
  - 20 digits
  - 50 digits
  - 100 digits
  - 200 digits
  - 500 digits
  - 1000 digits
- Autotare first weight
  - o Off
  - On
- Factory settings
  - Yes
  - o No

o = factory setting

- Save settings and exit Setup: Press the SETUP key or the << soft key

Automatic Taring
The first weight on the scale that exceeds the preset minimum load is stored in the tare memory at stability. The values for subsequent loads are stored as weight values. The scale returns to the initial state when the load is less than 50% of the minimum load.

Configure in Setup under:
`Application: Weigh: Autotare 1st weight`

Minimum Load
The minimum load required for automatic taring of the container weight on the platform (first weight), or for automatic printout of results, is configured in Setup under:
`Application: Weigh: MinL. autotar`

You can choose from the following 10 levels for this setting:

1 digit (no minimum load)
2 digits
5 digits
10 digits
20 digits
50 digits
100 digits
200 digits
500 digits
1000 digits

The "digits" here refer to the scale intervals in the connected weighing platform. If the interval of the connected platform is 1 g, for example, and 1000 digits are required, you must place at least 1000 g (= 1000 intervals = 1000 digits) on the weighing platform for autotaring.

Automatic Printing
The first weight value that exceeds the minimum load is printed out automatically. Configure in Setup under:
`Device: Printout: Once at stability`

Weighing with Two Weighing Platforms
You can connect two weighing platforms to the Combics 3. Press the key to toggle the display between weighing platforms.
You can define which of the two platforms is active in the display when the Combics is switched on. This is configured in Setup, under:
`Device: Operat.: Main scale`
The display shows the readout from the main scale when you switch on the Combics.

Device Parameters

Acoustic Signal
An acoustic signal is emitted when you press a key. If the key in question is allowed at the time it is pressed, the signal is a single beep. If it is not allowed, a double-beep sounds and the key has no function. You can switch off the acoustic signal in the Setup program, under:
`Device: Operat.: Acoustic signal`

Keys
You can block the keys to prevent input of key commands. This feature is configured in the Setup program, under:
`Device: Operat.: Keypad: Block`
You can choose from the following settings:
- All keys unblocked
- All keys blocked except I/⏻ and SETUP
- Alphanumeric keys blocked

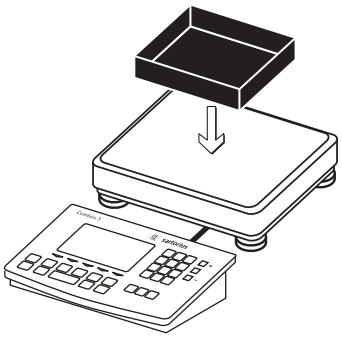
Display
The display contrast can be adapted to the prevailing conditions at the place of installation. This feature is configured in the Setup program, under:
`Device: Operat.: Display: Contrast`

You can configure the Combics to shut off the display lighting automatically following a specified period with no user activity. This feature is configured in the Setup program, under:
`Device: Operat.: Display: Backlit`

Automatic Shutoff
You can configure the Combics to shut down automatically following a specified interval with no user activity. This feature is configured in the Setup program, under:
`Device: Operat.: Auto-Off`
You can choose from a 2, 4 or 10-minute interval for auto shutoff. This is configured in Setup under:
`Device: Operat.: Timer`

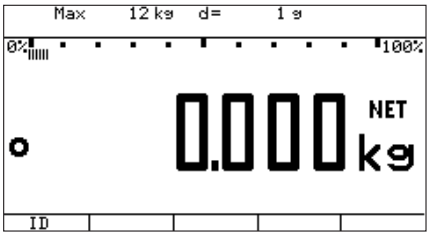
Example:
Weighing: Tare the scale by placing a container on the weighing platform

Turn on the Combics
The self-test function runs. When the display shows a weight readout, the Combics 3 is automatically zeroed and ready to operate. When there is no load on the platform, you can zero the scale at any time by pressing →0←.

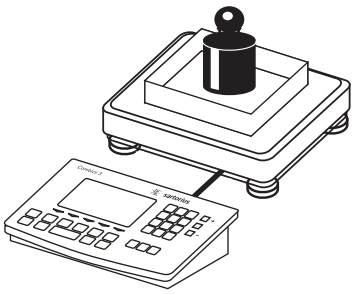


Place empty container on the platform

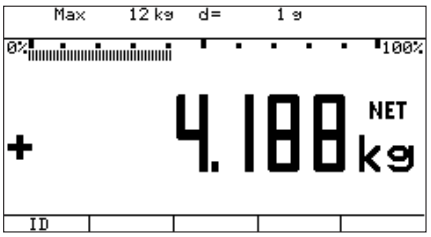
Tare the scale
Note: If the automatic tare function is enabled, you do not need to press the →T← key to tare the scale; the tare weight is stored automatically when you place the container on the platform



Wait until a zero value is displayed together with the NET symbol.



Place empty container on the platform



Wait until the weight unit symbol is displayed (indicating stability)
and then read off the weight value

Operating the Combics

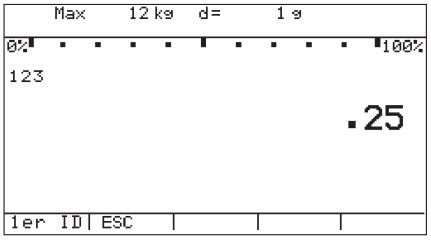
Example:
Weighing: Enter the tare weight value using the numeric keys; print results

I/⏻

Turn on the Combics
The self-test function runs. When the display shows a weight readout, the Combics 3 is automatically zeroed and ready to operate. When there is no load on the platform, you can zero the scale at any time by pressing →0←.

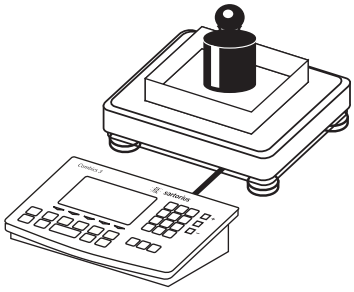
· 2 5

Enter the tare weight in the current weight unit using the keypad (in this example, 0.25 kg)

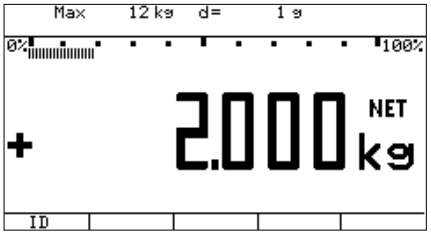


→T←

Save the tare weight



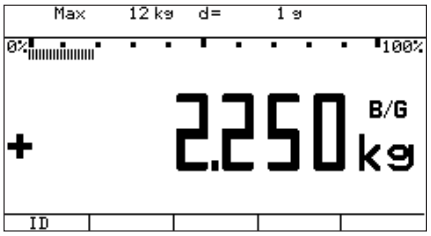
Place container with sample on the platform



Read the result

Fn

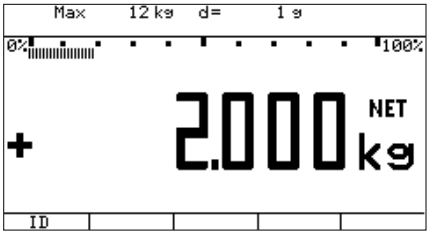
Toggle the display from net to gross weight values. The display shows:



the gross weight (in this example, 0.250 kg for the container plus 2.000 kg for the sample)

Fn

Toggle to display of net value



Print the results

```
--------------------
24.10.2002    10:09
Model  CW3P1-12ED-L
Ser.no.    12345678
Vers.   1.1010.10.2
BVers.     01-26-01
--------------------
EISENSCHMIDT
GOETTINGEN
Batch no.    123456
Cust.         Smith
24.10.2002    10:09
--------------------

G#    +    2.250 kg
T     +    0.000 kg
PT2   +    0.250 kg
N     +    2.000 kg
--------------------
--------------------
24.10.2002    10:10
Name:

--------------------
```

GMP header (only if GMP-compliant printout is configured)

End of GMP header
Header lines

ID codes

GMP footer (only if GMP-compliant printout is configured)

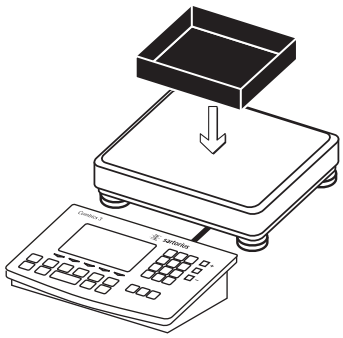
End of GMP footer

Operating the Combics

Example:
Weighing: Change the tare values, print results, delete tare values

[I/⏻]

Turn on the Combics
The self-test function runs. When the display shows a weight readout, the Combics 3 is automatically zeroed and ready to operate. When there is no load on the platform, you can zero the scale at any time by pressing [→0←].

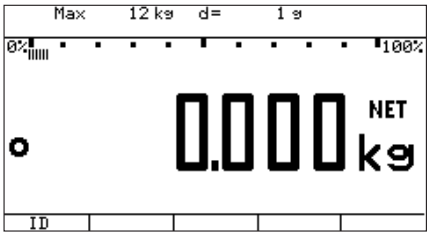


Place empty container on the platform

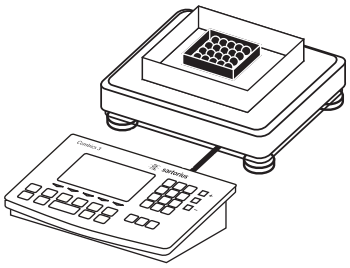
[→T←]

Tare the scale

Note: If the automatic tare function is enabled, you do not need to press the [→T←] key to tare the scale; the tare weight is stored automatically when you place the container on the platform



Wait until a zero value is displayed together with the NET symbol.



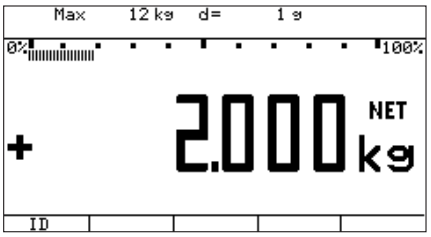
Place packaged sample in the container

[·] [2] [5]

Enter the tare weight of the packaging in the current weight unit using the keypad (in this example, 0.25 kg)

[→T←]

Save the package weight entered. The two tare values are added together; i.e. the individual tare values defined form a total tare value



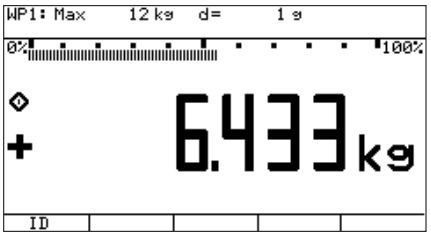
Read off net weight

Print the results

```
G#    +      6.433 kg
T     +      4.183 kg
PT2   +      0.250 kg
N     +      2.000 kg
--------------------
```

Enter a zero (“0”) using the keypad

Save the value entered (all tare values are deleted; the display shows the gross value)



Print the results

```
G#    +      6.433 kg
T     +      0.000 kg
N     +      6.433 kg
--------------------
```

Data ID Codes (Identifiers)

This function is available in all application programs and lets you assign codes for identification of measured values (such as product name, batch number, etc.) for inclusion on printouts.

Features

- Up to four ID codes can be stored, edited and individually deleted
- Each ID code has a name and value. Both are user-definable.
- The name is left-justified and the value is right-justified on the printout. If name and value together are too long for one line, the remaining characters are printed in subsequent lines.
- Enter ID code names in Setup under: `Device: Printout: ID codes`
  Enter up to 20 characters for the name of the ID code. No more than 11 characters are displayed during input; all 20 characters are printed.
- Values for the ID codes are entered when an application program is active; toggle to the input mode by pressing the `ID` soft key. You can enter up to 21 characters for the value of the ID code.
- Enter the first value directly through the numeric keypad. Press the `1st ID` soft key to save the value.
- To delete individual characters from an ID code value, press the CF soft key; press `Delete` to delete the entire code.
- If both the name and value fields are empty, no ID code is printed.
- In the Setup program, you can configure when and whether ID codes are printed (see “Configuring Printouts”).

Factory settings for the ID code names:

ID1:	`ID1`
ID2:	`ID2`
ID3:	`ID3`
ID4:	`ID4`

Factory settings for the ID code values:
No default values set.

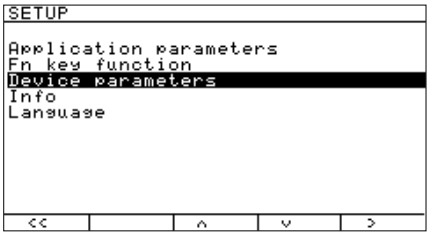
Soft Key Functions

`ID`	Toggle to ID code input
`ESC`	Cancel input
`Delete`	Delete selected ID code value
`1st ID`	Save the value entered as the first ID code

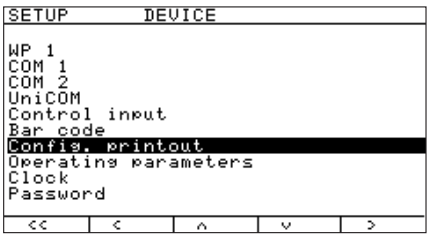
Example:
Entering ID code names.
Enter “Batch no.” and “Cust.” as names for ID codes 1 and 2.

SETUP — Activate the Setup program

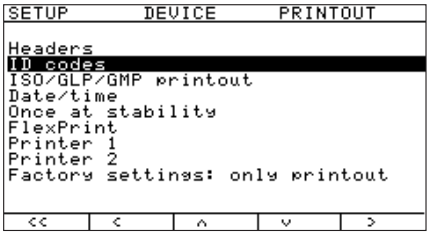
2 × soft key ∨



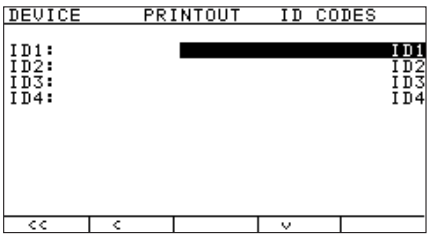
Soft key > — Select “Device parameters”
6 × soft key ∨



Soft key > — Select “Printout”
Soft key ∨



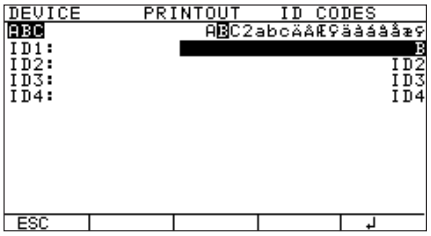
Soft key > — Select “ID codes”



ABC — Activate alphabetical input

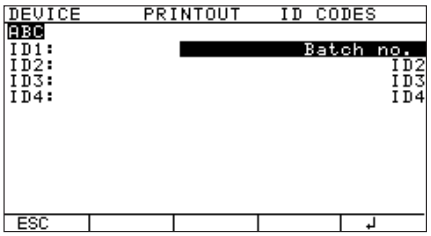
2 × [2 ABC]

Enter the letter “B”. Press the [2] key repeatedly until the desired character is displayed



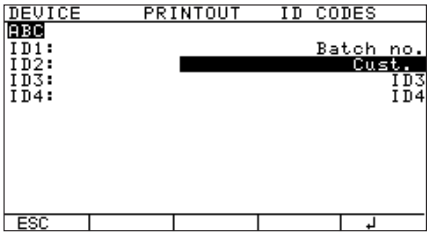
4 × [2 ABC]

Enter the letter “a”. Press the [2] key repeatedly until the desired character is displayed. Continue input (in this example, until “Batch no.” is entered)



Soft key ↵

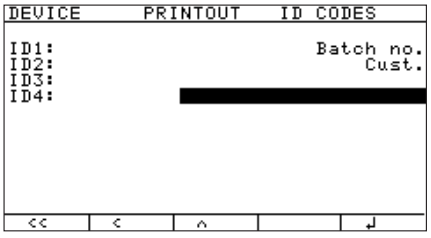
Confirm the name for the first ID code



Enter ID code 2 (in this example, “Cust.”)

Soft key ↵

Confirm the name for the second ID code



Delete ID codes “ID3” and “ID4”

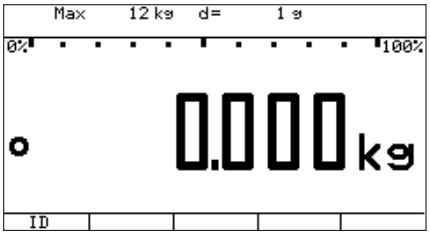
Soft key ↵

Confirm input

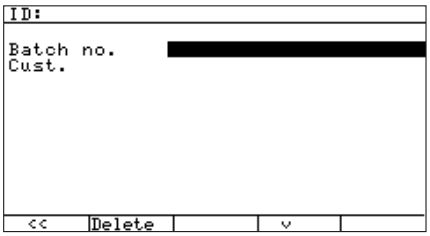
Soft key < <

Exit the Setup menu

Example:
Entering ID code values.
Enter “123456” and “Smith” as names for ID codes 1 and 2.

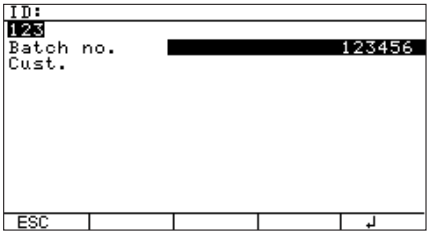


Soft key ID — Activate input of ID code values

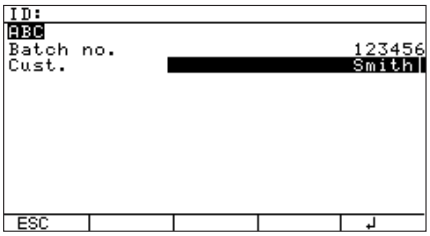


1 2 3
4 5 6

Enter value for ID code 1 (in this example, 123456)



Soft key ↵ — Confirm value for the first ID code



Enter value for ID code 2 (in this example, Smith)

Soft key ↵ — Confirm input

Soft key << — End input of ID code values

Calibration and Adjustment

Purpose
The accuracy of weighing results must be carefully controlled. This is achieved through calibration and adjustment.

Calibration technically means to determine the difference between the weighing instrument readout and the actual weight on the platform to determine the accuracy. This does not involve making any changes in the scale.

Adjustment means to bring a weighing instrument to the level of accuracy required for its use.

Configuring Functions for Use of the Scale in Legal Metrology
To set any of the Combics scales for use in legal metrology, use the switch located on the back on the left of indicator housing. This switch is covered by a cap.

On CH models, there is an additional switch on the scale. To set the switch to the correct position, please refer to the corresponding drawing ("Plates and Markings") in this instruction manual.

To use the scale as a legal for trade instrument, all switches must be in the "**locked**" position.

Features for CW-Modelle

Settings in the Setup menu:

- External calibration/adjustment blocked in verified weighing instruments

- External calibration/adjustment with the default weight value or standard weight (not available on verified scales). Configure in Setup under: ... `Calibration/adjustment: CAL key function`

- Specify the weight for external calibration/adjustment. Configure in Setup under: ... `Calibration/adjustment: External weight`

- Internal adjustment for IS weighing platforms (setting under: `COM1:` or `COM2: WP2`)

- Block the →T← key to prevent activation of the two functions described above. Configure in Setup under: ... `Calibration/adjustment: CAL key function`

- Calibrate first; then adjust automatically or manually (not verified weighing instruments). Configure in Setup under: ... `Calibration/adjustment: Cal./adj. sequence`

- Adjustment prompt: flashing `WP` symbol. If more than one weighing platform is connected, the platform number is also displayed. Configure in Setup under: ... `Calibration/adjustment: isoCAL function`

- Block external calibration/adjustment. Configure in Setup under: ... `Calibration/adjustment: Activate ext.` adj.

- Elevation and latitude or gravitational acceleration displayed after `Cal` is shown when the Combics is switched on, if these values have been entered. Configure in Setup under: `Device: Operat.: Geograph.data`
  For each of these parameters, the term is displayed first (`Altitud`, `Latitud` or `Gravity`) for 1 second, and then the corresponding value is displayed continuously until you press →T←.

Preparation

- Activate the Setup program: Press the SETUP key
- Select Device Parameters: Press the `>` soft key
- Select weighing platform 1, "`WP1`": Press the `>` soft key, or
- ○ Select interface 1, "`COM1`" or interface 2, "`COM2`" (depending on which interface is used for the second platform): Press the `>` soft key
  Select weighing platform 2, "`WP2`": Press the `>` soft key

Calibration/Adjustment
- CAL Key Function
  - o Ext. cal./adjust.: default weight
  - Ext. cal./adjust.: user-def. weight
  - Key blocked
- Cal./adj. Sequence
  - Cal. then auto adj.
  - o Cal. then manual adj.
- isoCAL Function
  - o Off
  - Adjustment prompt
- Activate ext. adj.
  - o Activated
  - Deactivated
- External Weight

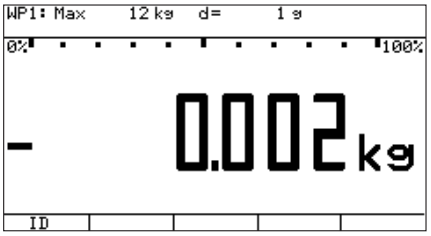
o = factory setting

- Save settings and exit Setup: Press the SETUP key or the `<<` soft key

CH Scales
- Before using the scale as a legal measuring instrument, you must carry out an internal calibration operation by selecting the "Internal Calibration" function at the place of installation.

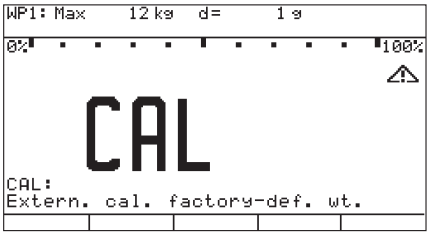
- To do so, press and hold the →T← key. During internal calibration, "CI" (for internal calibration) appears in the display. Once the calibration procedure is complete, a weight will be displayed automatically.

Example:
External calibration and manual adjustment with default weights (factory settings used for weighing parameters)

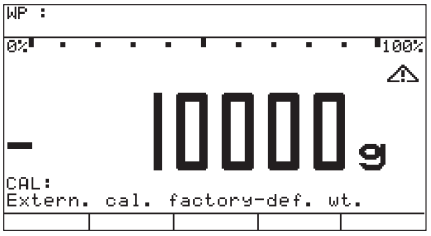


→0← Zero the scale

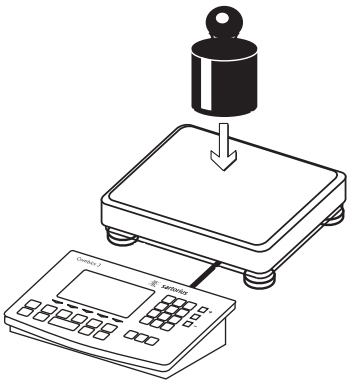
→T← (press and hold) Start calibration (e.g., when adjustment prompt flashes: WP)



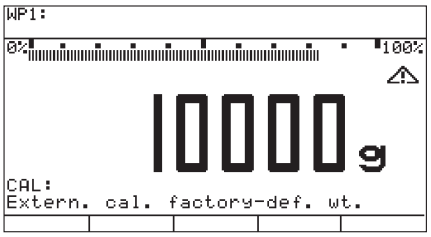
"Cal" is shown for two seconds

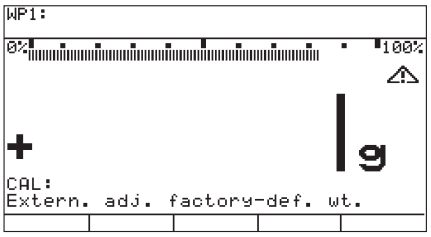


You are prompted to place required weight on the platform (e.g., 10,000)



Position the calibration weight on the weighing platform



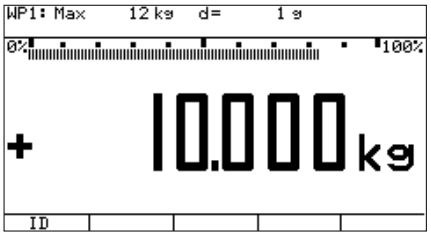


The difference between the weight value and the true mass is displayed, with +/- sign.

```
External calibration
Nom.  +       10000 g
Diff. +           1 g
```

Calibration record is printed, if adjustment was not performed and the process was stopped by pressing →0←

Activate adjustment (press the →0← key to cancel)



The calibration weight is displayed at the conclusion of calibration

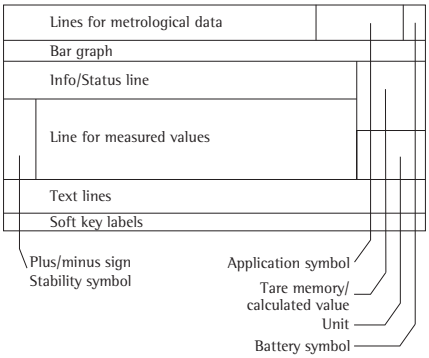
```
--------------------
24.10.2002    10:15
Model  CW3P1-12ED-L
Ser.no.    12345678
Vers.   1.1013.11.2
BVers.     01-26-02
--------------------
External calibration
Nom.  +       10000 g
Diff. +           1 g
External adjustment
Diff. +           0 g
--------------------
24.10.2002    10:15
Name:

--------------------
```

A GMP-compliant printout is generated

Data Output Functions

Data is output on the screen of the indicator and over the interface port. There are two standard interface ports (COM1 and COM 2) and, optionally, a multifunctional interface port (UniCOM). For details, see page 47.

Example:
Diagram of the information shown on CW indicators (weights and calculated values)



Lines for Metrological Data (in Legal Metrology)
This line shows:

Max 300kg – Upper limit of the weighing capacity (in this example, 300 kg)

Min 0.1kg – Lower limit of the weighing capacity (minimum sample weight); weight values below this limit are not permitted in legal metrology (in this example, 0.1 kg)

e= 0.1kg – Verification scale interval; this value is not relevant for weighing instruments that are not used in legal metrology (in this example, 1 kg)

d= 0.01kg – Readability/index: The scale interval of the weighing instrument (in this example, 0.01 kg)

Plus/Minus Sign, Busy Symbol, Zero-setting Range
This section shows:

– "Busy" symbol: shown when the scale is processing a function activated by pressing a key

\+ − – the plus or minus sign of the weight or other measured value

– Zero-setting symbol: Identifies "zero" as a weight value (after the scale or the active weighing platform has been zeroed)

Line for Measured Value/Results
This section shows:

5.234 – The current weight value (on verified scales or platforms with e ≠ d, the last digit is bordered for identification as a legal value), or

20 – A calculated value when using an application program, such as Counting or Weighing in Percent

Unit
This section shows:

g – The current weight unit (e.g., "g")

pcs – The unit of measure for other characteristics, such as "pieces" in the Counting application

Data in Tare Memory, Calculated Value, Identification of the Active Weighing Platform when More Than One Platform is Used
This section shows:

- ⚠ – Identification of calculated values (values not used in legal metrology)
- B/G NET – Identification of gross value or net value (data in tare memory)
- PT – Identification of manual tare input (using a bar code scanner)
- WP1 – Display of the active weighing platform when 2 platforms are connected. The symbol flashes to prompt adjustment of the weighing platform, if the isoCAL function is active.
- WP – When the timer is active (Setup: ...: Operat.: Timer) the symbol flashes to indicate that one-half of the preset time period has elapsed.

Symbols for Printing, GMP Printout and Battery Status
This section shows:

- – Printing in progress
- – GMP-compliant printout is configured
- – Battery status: 'Battery fully charged' or 'Battery empty'

Bar Graph
On the bar graph, a measured value is displayed either:

- as a percentage of the maximum capacity of the scale or weighing platform (gross weight), or

- in relation to a target value, with tolerance limits indicated

Application Symbols
This section shows:

- R1 R2 – Display of the range on multiple-range scales

Symbols for application programs:

- – Symbol for the Counting application
- Σ % – Symbols for the Totalizing, Checkweighing, Classification, Net-total Formulation, Weighing in Percent, Counting (with or without reference sample updating) and Neutral Measurement application programs. For details on the application programs, please see the "Basic Application Programs" manual for the Combics 3.

Interface Port

Purpose

The indicator is equipped with the following data interfaces:

- Standard COM1 and COM2 interfaces
- optional: UniCOM universal data interface (see “Accessories”).

Both interfaces can be configured in the Setup program (see “Configuring the Combics”) for different input/output functions. For example, you can connect a printer, Alibi memory, PC, remote checkweighing display, or second weighing platform to a COM port, or configure the port for control command input (e.g., for using a foot switch). The optional UniCOM interface can be used for Profibus-DP, RS-232, RS-485 or RS-422 communication, or as a voltage/current (analog) interface. A bar code scanner or an external rechargeable battery pack can be connected to the female UniCOM port (on CW3S models, use the corresponding terminal screws).

Features

Built-in standard COM1 and COM2 ports, plus option for installing a UniCOM universal data interface:

- CW3P indicator (IP44 protection): Connect via a 25-contact D-Sub female connector.
  If you wish to connect a second device to an interface port, a T-connector is required (see “Accessories”).
- CW3S indicator (IP67 protection): Route the connecting cable from the peripheral device to the indicator via a cable gland. Then connect the free ends of the cable using the terminal screws.
  If you wish to connect a second peripheral device to the same interface port, use a separate cable gland to route the connecting cable of this device into the indicator and connect the free ends of the cable using the terminal screws.

⚠ **Warning When Using Pre-wired RS-232 Connecting Cables**

RS-232 cables purchased from other manufacturers often have incorrect pin assignments for use with Sartorius weighing systems. Be sure to check the pin assignments against the chart in this manual before connecting the cable, and disconnect any lines identified differently from those specified by Sartorius. Failure to do so may damage or even completely ruin your indicator and/or peripheral device.

Specifications

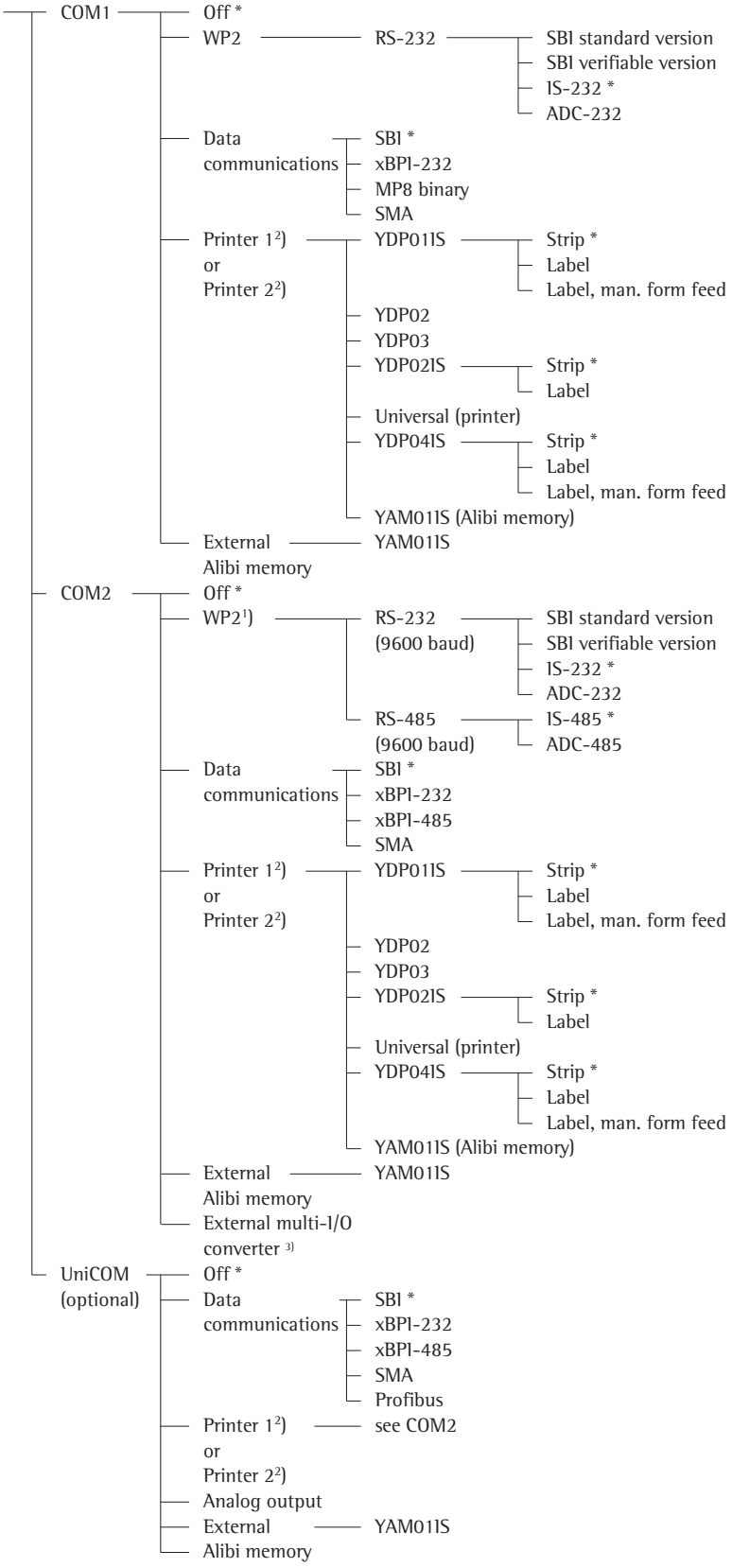
Serial interface:		
Operating mode:	Full duplex	
Standard:	COM1:	RS-232
	COM2[1]):	RS-232, RS-485
	UniCOM (optional)[2]):	RS-232 or RS-422/RS-485
Interface connector:	CW3P indicator (IP44 protection): 25-contact D-Sub female connector CW3S or CH* indicator (IP67 protection): The free ends of the cable are connected to terminal screws inside the housing; the cable is routed into the housing via a cable gland.	
Transmission rates:	150, 300, 600, 1200, 2400, 4800, 9600 and 19,200 baud (depending on the operating mode)	
Number of data bits:	7 or 8 bits	
Parity:	Space, odd, even, none (depending on the operating mode)	
Number of stop bits:	1 or 2 stop bits	
Handshake Mode	Software (XON/XOFF) or hardware (1 character after CTS)	
Communication mode:	SBI, xBPI-232[2]), xBPI-485[2])[3]), MP8-binary[4]), SMA, Profibus (UniCOM only) Available printers: – YDP01IS – YDP01IS-Label – YDP02 – YDP03 – YDP02IS – YDP02IS-Label – Universal – YDP04IS – YDP04IS-Label – YAM01IS Alibi memory	
Network address[5]):	0, 1, 2, (...), 31	
SBI: Manual output:	Without stability, after stability, configurable printout	
SBI: Automatic output:	Without stability, at stability, at user-defined intervals	
SBI: Output format	16 or 22 characters	
Printout of application data:	Output of a configurable printout	

Factory settings: Depends on the device configured; for example, “Data record”, “SBI”	
Transmission rate:	1200 baud
Number of data bits:	7 bits
Parity:	Odd
Stop bits:	1 stop bit
Handshake:	Hardware handshake, 1 character after CTS
Activation of data output:	Print on request after stability
Time-dependent autoprint:	1 display update
Output format:	22 characters

Analog UniCOM interface (optional)	
Standard:	4 to 20 mA, 0 to 20 mA, 0 to 5V
Power supply:	Internal or external
Factory settings:	4 to 20 mA, internal power supply
Interface connector:	CW3P indicator (IP44 protection): 25-contact D-Sub female connector CW3S indicator (IP67 protection): The free ends of the cable are connected to terminal screws inside the housing; the cable is routed into the housing via a cable gland. CW3S or CH* indicator (IP67 protection)

⚠ If necessary, use an external power source to power peripheral devices.

[1]) the signals from both the COM2 and the UniCOM ports are transmitted over a single D-Sub female connector
[2]) xBPI operating mode: 9600 baud, 8 data bits, parity: odd, 1 stop bit
[3]) COM2 and optional UniCOM universal data interface
[4]) only with the standard COM1 interface
[5]) Network address is valid only in the xBPI mode



* factory setting
[1]) COM2 only
[2]) Max. 2 printers can be configured
[3]) Function will be made available in future

Preparation

● See “Pin Assignment Chart” for pin assignments and wiring diagram.

Options for Connecting Peripherals
You can connect the following printers to the COM1, COM2 or UniCOM port:

- YDP02 (user-definable interface parameters)
- YDP03 (user-definable interface parameters)
- YDP01IS (strip or label printer)
- YDP02IS (strip or label printer)
- YDP04IS (strip or label printer)
- Universal printer (user-definable transmission parameters)
- YAM01IS Alibi memory

⚠ If necessary, use an external power source to power peripheral devices.

In addition, the following devices can be connected to the standard COM1 and COM2 interfaces:

- Foot switch / hand switch
- PC (RS-232 interface)
- Second weighing platform (RS-232 interface)
- External checkweighing display (red/yellow/green) over the digital I/O (Sartorius standard)
- External rechargeable battery pack
- Bar code scanner / keyboard interface

The following devices can be connected to the optional UniCOM universal interface:

- PC (RS-232 interface)
- Second printer (external power source required)
- Remote display
- Digital I/O
- Current interface (0/4 - 20 mA)
- PLC with Profibus-DP

Combics 3 enables connection of a second weighing platform, either to the COM1 port or to the UniCOM universal port.

The standard COM1 port is operated in the RS-232 mode. The second weighing platform can be operated in any of the following modes:
- SBI
- xBPI-232 (factory setting)
- ADC-232

The standard COM2 port and the optional UniCOM universal interface can be operated in either the RS-232 or RS-485 mode. The second weighing platform can be operated in any of the following modes:
- SBI (RS-232 mode)
- IS-232 (RS-232 mode)
- ADC-232 (RS-232 mode)
- IS485 (RS-485 mode, xBPI mode; factory setting)
- ADC-485 (RS-485 mode)

The standard COM1 and COM2 ports or the optional universal UniCOM interface can be used as a printer interface.

For operation as a COM port, you can adapt data records to the following operating modes:
- SBI (factory setting)
- xBPI-232
- xBPI-485
- M8 binary (COM1 port only)
- SMA

In the SBI communication mode, you can control a display unit and a connected weighing platform by sending ESC commands from a PC to the communications port (COM1 or UniCOM). For details, see the section entitled “Data Input Format” in this chapter.

Generating SBI Data Output

In the Setup menu, under “Data Communications: SBI: Data output”, you can define which data is output when an output command is received:
- The displayed value, with or without stability check
- Automatic output of the displayed value, either with or without stability check, or automatically at defined intervals
- Output of a printout as configured in the Setup program, under “Device parameters: Printout: Printer 1 (or 2)” (see next page).
You can define the printout content by specifying which blocks of information are to be included. Please refer to the section entitled “Configuring Printouts” in this chapter for detailed instructions and sample printouts.

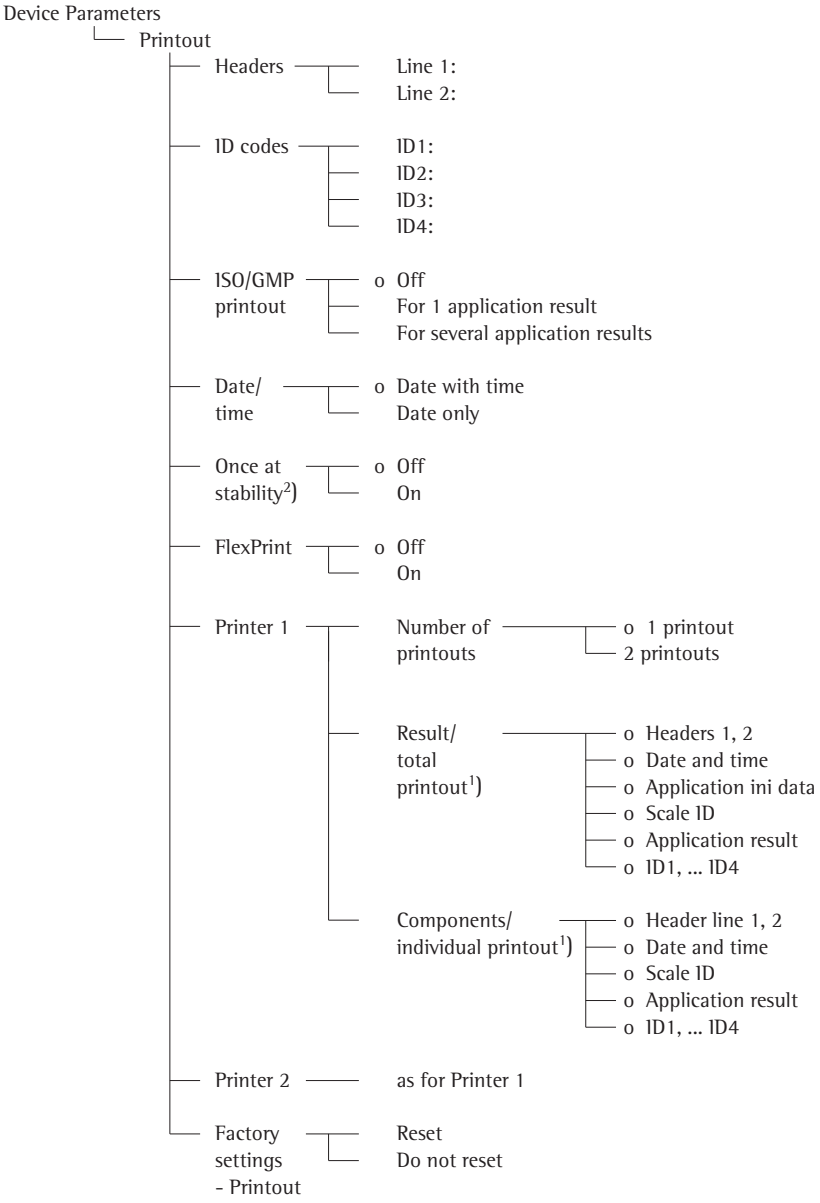
If you do not activate and configure a user-definable data record, the printout simply contains the current value displayed on the indicator (weight with unit, calculated value, numeric or alphabetic ID).

The settings are configured under “Data Communications: SBI: Data output”: Here you can define whether data is output on request or automatically, at stability or without stability check; and configure a user-defined printout. If you select time-dependent automatic printout, you need to define the print interval (in display updates) as well.

Generally, data is output only after the weighing instrument has stabilized. If you wish to enable output without a stability check, configure the “Data communications” settings accordingly (under SBI: Data output)

Line Format
Each line of a printout can contain up to 20 characters. The first 6 characters, called the “data header”, identify the subsequent value. Under “Data communications: SBI: Line format” you can disable header printing, in which case a printed line can contain up to 14 characters (factory setting: “For other apps. 22 characters”).

For more details, refer to the “Operating Menu Overview” in the chapter entitled “Configuring the Combics”.



o = factory setting
1) = more than one can be selected
2) = when the minimum load is exceeded (configure under: Application parameters: ... : Minimum load for autotaring)

Printing

There are several actions that generate the command for outputting data to the printer port:

- Pressing the [F] key. If the Setup program is active, the menu settings are printed (see "Configuring the Combics").
- Sending the SBI command "Esc k P _". For details, see "Data Input Format" in this chapter.
- In some applications, pressing a given key (e.g., to save a value or start a routine) also generates a print command. In this case, a configurable printout is generated with application-specific data. For details, refer to the "Basic Application Programs" manual for the Combics 3. See also "Configuring Printouts" below for sample printouts.

The ⏲ and ⯁ symbols are displayed when data is being output to the printer port.

Line Format
Each line of a printout can contain up to 20 characters. The first 6 characters, called the "data header", identify the subsequent value.

Configuring Printouts

To configure a printout, activate the Setup menu and navigate to the menu items shown in the diagram on the left. For details on menu navigation, see "Configuring the Combics".

You can configure a different printout for each interface. Each printout contains your choice of the following information blocks; to enable or disable a block in the printout, select it or deselect it in the Setup menu:

- Headers: Line 1, Line 2
- Date, time
- Dotted line and blank line (for the Weighing application).
  This block cannot be deselected.
  It is printed to separate the next block ("Initialization data", below) from the subsequent blocks.
- Initialization data (e.g., reference sample quantity, reference piece weight), followed by a blank line.

This block is not included on the printout of results from the Totalizing and Net-total Formulation applications.

- Serial number of the load cell
- Results: Gross, tare, and net values; blank line and application-specific result (e.g., piece count) followed by a dotted line.

In the Setup menu, select the blocks of information that you wish to include (multiple selections possible; factory settings: all blocks included). A blocked that is not selected is omitted from the printout.

Information Blocks
The individual information blocks are shown below with detailed explanations. Samples of complete printouts are provided following the end of this section.

Headers
You can define 2 headers, each with 20 characters per line (e.g., for printing your company's name).
The following characters are available: "0" to "9", "A" to "Z", "-" and " " (space).
When this block is enabled, the printout appears as follows (example):

```
    ACE HARDWARE
     GOETTINGEN
```

In this example, the company name is centered on the printout. This was achieved by entering 3 blank spaces at the beginning of the first line, and 4 at the beginning of the second line.

ID Codes
ID1: Data ID code 1
ID2: Data ID code 2
ID3: Data ID code 3
ID3: Data ID code 3
The name (in this example, ID1) is left-justified and the value is right-justified on the printout. If name and value together are too long for one line, the remaining characters are printed in subsequent lines.

When this block is enabled, the printout includes up to four ID codes, which are stored in the indicator. Example:

```
ID1     Batch no.1234
ID2   Steelmeyer Co.
ID3       Screws M4x6
ID4         Mr. Smith
--------------------
```

Date/Time
When this block is enabled, the printout appears as follows (example):

```
21.01.2001      16:02
```

To achieve a standardized time stamp (e.g., for documentation in a fully automated system), you can disable the printout of the time in this information block, by selecting "Device parameters: Config. printout: Date/time: Date only" (factory setting: "Date with time"). With "Date only" selected, the time stamp can be inserted by a higher-level controller or central computer to maintain consistent time stamping. This setting is especially important for communication with a PC.

Separating Block: Dotted Line
This block is automatically inserted before further information blocks are printed.

```
--------------------
```

Application Initialization Data
Which data is included in this block depends on the active application. In the Weighing application, for example, this block is empty; in the Counting application, the reference sample quantity and the reference piece weight are printed. The block is terminated with a blank line. When this block is enabled, the printout appears as follows (example: Counting application):

```
nRef            10 pcs
wRef   +     0.035 kg
```

Scale ID (e.g., the serial number of the weighing platform)
When this block is enabled, the printout appears as follows (example):

```
Ser.no.    1234567890
```

Application Results
Which data is included in this block depends on the active application. If provided in the application, the gross, net and tare weights are usually printed, followed by a blank line. In the Counting application, the piece count is printed as the result. This block is terminated by a dotted line. When this block is enabled, the printout appears as follows (example: Counting application):

```
G#      +     1.402 kg
T       +     0.200 kg
N       +     1.202 kg

Qnt             34 pcs
--------------------
```

Enabling GMP-compliant Printouts
Select "ISO/GLP/GMP printout" to add a GMP header and a footer bracketing the measured result on the printout. If the GMP-compliant printout is activated (factory setting: Off), the 🖹 symbol is displayed on the indicator until the printout is generated. You can choose from the following settings:

- GMP-compliant printout off (factory setting)
- GMP-compliant printout for 1 result
- GMP-compliant printout for multiple results

The GMP header is included from the first printout generated subsequent to the activation of the "GMP" menu item. The GMP footer is printed either after each measured result ("ISO/GLP/GMP: For 1 application result"), or after the last result in a series of measurements, when you press and hold the (🖹) key for more than 2 seconds ("ISO/GMP/GLP: For several application results"). In this case, the 🖹 symbol remains displayed until the GMP footer is printed.

If you toggle to a different platform while a GMP printout of several measured results is being generated, the GMP footer for the platform used up to that point is generated when you press (⚖). The GMP header for the other platform is included on the next printout generated.

A GMP-compliant printout is generated automatically at the conclusion of calibration/adjustment routines, as well as when you set or clear a preload.

If you use a label printer for GMP-compliant printouts, you may find that a single label is not long enough for the data printed. If this is the case, activate the "Form feed" setting to advance the paper after each printout of a GMP header and application results.

The following page shows three samples of GMP headers and footers. Please refer to the following section, "Sample Printouts", for samples of complete printouts.

Sample Printouts

For details on the individual information blocks, see “Configuring Printouts”, above. For details on configuring the header lines, refer to the “Basic Application Programs” manual for the Combics 3.

Weighing Application
There is no data for the “initialization data” block. If this block is enabled for the printout, a blank line is output.

With weighing platform serial number:

```
    HEADER LINE 1
    HEADER LINE 2
14.01.2002     09:43
--------------------

Ser.no.      80705337

G#     +     1.402 kg
T      +     0.200 kg
N      +     1.202 kg
--------------------
```

Counting Application
The “Initialization data” block contains the reference sample quantity and reference piece weight. The “Results” block contains gross, net and tare weights, as well as the calculated piece count.

```
    HEADER LINE 1
    HEADER LINE 2
14.07.2002     09:43
--------------------
nRef            10 pcs
wRef   +     0.035 kg

G#     +     1.402 kg
T      +     0.212 kg
N      +     1.190 kg

Qnt             34 pcs
--------------------
```

Neutral Measurement Application
The “Initialization data” block contains the reference sample quantity and reference weight. The “Results” block contains gross, net and tare weights, as well as the calculated piece count.

```
    HEADER LINE 1
    HEADER LINE 2
14.07.2002     09:43
--------------------
Ref              2 o
wRef   +     1.200 kg

G#     +    14.700 kg
T      +     0.300 kg
N      +    14.400 kg

Qnt             12 o
--------------------
```

Weighing in Percent Application
The “Initialization data” block contains the reference percentage and reference weight. The results block shows gross, net and tare weights, as well as the percentage, which is shown as either the loss or the residual amount.

Percentage = residue:

```
   HEADER LINE 1
   HEADER LINE 2
14.07.2002     09:43
--------------------
pRef           100 %
Wxx%   +     2.100 kg

G#     +     1.859 kg
T      +     0.200 kg
N      +     1.659 kg

Prc             79 %
--------------------
```

Percentage = loss:

```
    HEADER LINE 1
    HEADER LINE 2
14.07.2002     09:43
--------------------
pRef           100 %
Wxx%   +     2.100 kg

G#     +     0.641 kg
T      +     0.200 kg
N      +     0.441 kg

D               21 %
--------------------
```

Checkweighing Application
The “Initialization data” block contains the nominal, minimum and maximum weights. The “Results” block always contains the gross, net and tare weights. The other results can be displayed in one of two ways:

- Result = Weight:
  The deviation from the nominal weight is given both as a percentage and as an absolute (weight) value, whether the result lies within the “OK” range or not.

- Result = Threshold status:
  If the result lies within the “OK” range, the printout shows the deviation from the nominal weight both as a percentage and as an absolute (weight) value, just as in the “Weight” printout mode described above. If the result is outside the “OK” range, the last line of the printout indicates the status as follows:

Result in “OK” range; “Weight” or “Threshold” printout:

```
     HEADER LINE 1
     HEADER LINE 2
14.07.2002     09:43
--------------------
Setp   +     1.300 kg
Min    +     1.235 kg
Max    +     1.365 kg

G#     +     1.312 kg
T      +     0.000 kg
N      +     1.312 kg

Lim    +      0.92 %
W.Diff+     0.012 kg
--------------------
```

Result outside “OK” range; “Weight” printout:

```
     HEADER LINE 1
     HEADER LINE 2
14.07.2002     09:43
--------------------
Setp   +     1.300 kg
Min    +     1.235 kg
Max    +     1.365 kg

G#     +     1.200 kg
T      +     0.000 kg
N      +     1.200 kg

Lim    -      7.69 %
W.Diff-     0.100 kg
--------------------
```

Result outside (under) “OK” range; “Threshold” printout:

```
    HEADER LINE 1
    HEADER LINE 2
14.07.2002     09:43
--------------------
Setp   +     1.300 kg
Min    +     1.235 kg
Max    +     1.365 kg

G#     +     1.200 kg
T      +     0.000 kg
N      +     1.200 kg

Stat      LL
--------------------
```

Result outside (over) the “OK” range; “Threshold” printout:

```
    HEADER LINE 1
    HEADER LINE 2
14.07.2002     09:43
--------------------
Setp   +     1.300 kg
Min    +     1.235 kg
Max    +     1.365 kg

G#     +     1.400 kg
T      +     0.000 kg
N      +     1.400 kg

Stat      HH
--------------------
```

Classification Application
The "Initialization data" block contains the upper limits of Classes 1 through 4. The "Results" block contains gross, net and tare weights, as well as the class that the sample belongs to (1 through 5, where Class 5 means that the upper limit of Class 4 was exceeded).

```
    HEADER LINE 1
    HEADER LINE 2
14.07.2002      09:43
--------------------
Lim1   +    10.000 kg
Lim2   +    11.000 kg
Lim3   +    12.000 kg
Lim4   +    13.000 kg

G#     +     9.700 kg
T      +     0.000 kg
N      +     9.700 kg

Class              1[1])
--------------------
```

[1]) Classification is based on values from 1 to 5. Any weight that exceeds the upper limit defined for Class 4 is designated as Class 5, if the application is configured for 5 classes rather than 3.

Animal Weighing Application
The "Initialization data" block contains the number of measured values that averaging is based on. The "Results" block contains the tare weight and the mean value.

```
    HEADER LINE 1
    HEADER LINE 2
14.07.2002      09:43
--------------------
mDef               8

T      +     0.000 kg
x-Net  +     4.202 kg
--------------------
```

Net-total Formulation Application
The "Initialization data" block is empty. Which data is contained in the "Results" block value depends on the program operating status at the time of printing. The following options are available:
- Total/results printout (press CF)
- Individual/components printout (When M+ is pressed to save a component, or when ⎙ is pressed for an individual printout)

'Total' printout:

```
    HEADER LINE 1
    HEADER LINE 2
14.07.2002      09:43
--------------------
n                  3
Tot.cp+      3.400 kg
Cont.T+      0.200 kg
--------------------
```

Individual/Component Printout
If you press OK the header is printed only once. Each component is printed automatically when you press 0 to store it. If you are using a label printer, make sure a single label is large enough for the list of all components. For printer models YDP01IS and YDP04IS, you can configure manual form feed in the operating menu. With the YDP02IS printer, form feed is automatic after each print command (fixed setting).

If an automatic printout is generated when you store a component, the component weight is equal to the current net weight. This is why components rather than net weights are printed.

Component printout
Example with 3 components (the corresponding 'Total' printout is shown above):

```
    HEADER LINE 1
    HEADER LINE 2
14.07.2002      09:43
--------------------
CmpOO1+      1.200 kg

CmpOO2+      2.000 kg
```

Printout of third component generated by pressing ⎙

```
G#     +     4.400 kg
T      +     0.200 kg
T2     +     4.200 kg
N      +     0.000 kg
```

Individual printout when a component is saved in tare memory by pressing OK

Example: Print second component:

```
    HEADER LINE 1
    HEADER LINE 2
14.07.2002      09:43
--------------------
CmpOO2+      1.000 kg
```

Individual printout of a component by pressing ⎙
Example for second component:

```
    HEADER LINE 1
    HEADER LINE 2
14.07.2002      09:43
--------------------
G#     +     2.400 kg
T      +     0.200 kg
T2     +     2.200 kg
N      +     0.000 kg
```

Totalizing Application
The "Initialization data" block is empty. If this block is enabled for the printout, a blank line is output.
Which data is contained in the "Results" block value depends on the program operating status at the time of printing. The following options are available:
- 'Results' printout (press CF): Printout of values from gross totalizing memory "*G", net totalizing memory "*N" and number transactions "n".
- Standard / component printout automatic (when M+ is pressed to save a value)
- Standard / component printout manual, by pressing ⎙.

Whether an individual printout or a printout of all components is generated depends on the operating menu settings.
When the components printout is configured, the header is printed only once, followed by all components.
If you are using a label printer, make sure a single label is large enough for the list of all components. For printer models YDP01IS and YDP04IS, you can configure manual form feed in the operating menu. If the corresponding setting is active, you can activate "form feed" manually. With the YDP02IS printer, form feed is automatic after each print command (fixed setting).
When "manual" printing is configured (press ⎙ to print) the transaction counter value is not printed.

Printout of components
Example with 3 transactions:

```
    HEADER LINE 1
    HEADER LINE 2
14.07.2002      09:43
--------------------
G#      +     1.400 kg
T       +     0.200 kg
N       +     1.200 kg
n                   1

G#      +     3.400 kg
T       +     0.200 kg
N       +     3.200 kg
n                   2

G#      +     4.400 kg
T       +     0.200 kg
N       +     4.200 kg
n                   3
```

'Total' printout (by pressing CF);
application data and status as above:

```
    HEADER LINE 1
    HEADER LINE 2
14.01.2002      09:43
--------------------

*G            9,200 kg
*N      +     8,600 kg
n                   3
--------------------
```

Individual printout when storing a component in totalizing memory by pressing SETUP
Example: Print second transaction:

```
    HEADER LINE 1
    HEADER LINE 2
14.07.2002      09:43
--------------------
G#      +     2.400 kg
T       +     0.200 kg
N       +     2.200 kg
n                   2
```

Individual printout (by pressing ⊟)
Example: Print second transaction:

```
    HEADER LINE 1
    HEADER LINE 2
14.07.2002      09:43
--------------------
G#      +     2.400 kg
T       +     0.200 kg
N       +     2.200 kg
```

GMP-compliant Printout
The GMP-compliant printout consists of 3 sections (see also the section entitled "Enabling GMP-compliant Printouts, above):

- GMP header
  Printout of data record (for example, from the Weighing application)
- GMP footer

Linearization record:

```
--------------------
14.07.2002      13:00
Model CW3P1-30ED-LCE
Ser.no.      12345678
Vers.     1.1010.10.2
BVers.       01-26-01
--------------------

Linearization
Wt.1 +        7.00 kg
Wt.2 +       15.00 kg
Wt.3 +       22.00 kg
Wt.4 +       30.00 kg
             completed
--------------------
14.07.2002      13:02
Name:


--------------------
```

Calibration/adjustment record:

```
--------------------
14.07.2002      13:50
Model CW3P1-30ED-LCE
Ser.no.      12345678
Vers.     1.1010.10.2
BVers.       01-26-01
--------------------

External calibration
Targ.  +     30.00 kg
Diff. -       0.03 kg
External adjustment
Diff. +       0.00 kg
--------------------
14.07.2002      13:52
Name:

--------------------
```

'Set preload' record:

```
--------------------
14.01.2002      13:50
Model CW3P1-30ED-LCE
Ser.no.      12345678
Vers.     1.1010.10.2
BVers.       01-26-01
--------------------

Set preload
             completed
--------------------
14.07.2002      13:52
Name:

--------------------
```

'Clear preload' record:

```
--------------------
14.07.2002      13:50
Model CW3P1-30ED-LCE
Ser.no.      12345678
Vers.     1.1010.10.2
BVers.       01-25-01
--------------------

Clear preload
           completed
--------------------
14.07.2002      13:52
Name:

--------------------
```

Weighing printout with multiple results
Example with 2 results:

```
--------------------
14.07.2002      09:43
Model CW3P1-30ED-LCE
Ser.no.      12345678
Vers.     1.1010.10.2
BVers.       01-26-01
--------------------

    HEADER LINE 1
    HEADER LINE 2
14.07.2002      09:43
--------------------
G#      +      2.40 kg
T       +      0.20 kg
N       +      2.20 kg
--------------------
    HEADER LINE 1
    HEADER LINE 2
14.07.2002      09:44
--------------------
G#      +      3.40 kg
T       +      0.30 kg
N       +      3.10 kg
--------------------
14.07.2002      09:45
Name:

--------------------
```

Data Output Format (Line Format)

You can output the value displayed in the measured value line and the weight unit, with or without a data ID code. Whether the data ID code is included in the output depends on your settings under “Line Format”.

Examples:

	+	235 pcs	Without data ID code
Qnt	+	235 pcs	With data ID code

Line Format settings:
For raw data (16 characters): no “data header”
For other apps. 22 characters): with “data header” (factory setting).

Output format with 16 characters
Display segments that are not activated are output as spaces. Characters without a decimal point are output without a decimal point.

The type of character that can be output depends on the character’s position:

Normal Operation

Pos.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	+	*	D	D	D	D	D	D	D	D	*	U	U	U	CR	LF
or	-	*	D	D	D	D	D	D	D	D	*	U	U	U	CR	LF
or	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CR	LF

+-: Plus or minus sign
*: Space
D: Digit or letter (max. 7 characters plus decimal point)
U: Character for unit of measurement[1])
(1 to 3 letters followed by 0 to 2 spaces)
CR: Carriage return
LF: Line feed

Special Codes

Pos.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	*	*	*	*	*	*	–	–	*	*	*	*	*	*	CR	LF
or	*	*	*	*	*	*	H	*	*	*	*	*	*	*	CR	LF
or	*	*	*	*	*	*	H	H	*	*	*	*	*	*	CR	LF
or	*	*	*	*	*	*	L	*	*	*	*	*	*	*	CR	LF
or	*	*	*	*	*	*	L	L	*	*	*	*	*	*	CR	LF
or	*	*	*	*	*	*	C	*	*	*	*	*	*	*	CR	LF

*: Space
– –: Final readout mode
H: Overload
HH: Overload in Checkweighing
L: Underload
LL: Underload in Checkweighing
C: Calibration/adjustment

[1]) depends on scale type; for example, not all units are available on scales verified for use in legal metrology.

Error Codes

Pos.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	*	*	*	E	r	r	*	*	#	#	*	*	*	*	CR	LF
or	*	*	*	E	r	r	*	#	#	#	*	*	*	*	CR	LF

*: Space
#: Error code number (2 or 3 digits)

Example: Output of the weight value +1255.7 g

Pos.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	+	*	*	*	1	2	5	5	.	7	*	g	*	*	CR	LF

Position 1: Plus or minus sign or space
Position 2: Space
Positions 3-10: Weight value with decimal point; leading zeros are output as spaces.
Position 11: Space
Positions 12-14: Unit symbol or space
Position 15: Carriage return
Position 16: Line feed

Data Output Format with 22 Characters
When data is output with an ID code, the 6-character code precedes the 16-character string described above. The code identifies the subsequent value.

Normal Operation

Pos.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	l	l	l	l	l	l	+	*	D	D	D	D	D	D	D	D	*	U	U	U	CR	LF
or	l	l	l	l	l	l	-	*	D	D	D	D	D	D	D	D	*	U	U	U	CR	LF
or	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CR	LF

l: ID code character[1], right-justified with spaces
+-: Plus or minus sign
*: Space
D: Digit or letter (max. 7 characters plus decimal point)
U: Character for unit of measurement[1])
(1 to 3 letters followed by 0 to 2 spaces)
CR: Carriage return
LF: Line feed

Special Codes

Pos.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	S	t	a	t	*	*	*	*	*	*	*	*	–	–	*	*	*	*	*	*	CR	LF
or	S	t	a	t	*	*	*	*	*	*	*	*	H	*	*	*	*	*	*	*	CR	LF
or	S	t	a	t	*	*	*	*	*	*	*	*	H	H	*	*	*	*	*	*	CR	LF
or	S	t	a	t	*	*	*	*	*	*	*	*	L	*	*	*	*	*	*	*	CR	LF
or	S	t	a	t	*	*	*	*	*	*	*	*	L	L	*	*	*	*	*	*	CR	LF
or	S	t	a	t	*	*	*	*	*	*	*	*	C	*	*	*	*	*	*	*	CR	LF

*: Space
– –: Final readout mode
H: Overload
HH: Overload in Checkweighing
L: Underload
LL: Underload in Checkweighing
C: Calibration/adjustment

Error Codes

Pos.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	S	t	a	t	*	*	*	*	*	E	r	r	*	*	#	#	*	*	*	*	CR	LF
or	S	t	a	t	*	*	*	*	*	E	r	r	*	#	#	#	*	*	*	*	CR	LF

*: Space
#: Error code number (2 or 3 digits)

Characters for ID code 1[1])	Meaning
G#	Gross value
N	Net value
T	Application tare memory 1
T2	Application tare memory 2
Diff	Difference from calibration value
Nom.	Exact calibration weight
nRef	Reference sample quantity
pRef	Reference percentage
wRef	Reference sample weight
Qnt	Result from Counting (piece count) and Neutral Measurement applications
mDef	Target value for Animal weighing
x–Net	Result from Animal Weighing
Setp	Target value for Checkweighing
W.Diff	Absolute difference (e.g., in kg) in Checkweighing
Lim	Deviation in % in Checkweighing
Max	Upper limit for Checkweighing
Min	Lower limit for Checkweighing
Stat	Status
Class	Classification
Limx	Class limit
D	Percentage (as loss)
Prc	Percentage (as residue)
Wxx%	Reference percentage weight
Cmpxxx	Component xxx
Cont.T	Contents of the tare memory in Net-total Formulation
Tot. cp	Total weight in Net-total Formulation
PT2	Preset tare
n	Transaction counter
*G	Sum of gross weights in Totalizing
*N	Sum of net weights in Totalizing
Ser.no	Serial number of the platform or indicator

[1]) depends on scale type; for example, not all units or characters are available on scales verified for use in legal metrology.

Automatic Data Output (SBI)

You can have results of measurement printed automatically[1]). You can configure the autoprint function to print at certain intervals (measured in display updates[2])) and define whether printing is dependent on stability of the weighing instrument[3]) How often the display is updated depends on the operating status and model of the equipment.

Examples:

N + 153.00 g	Net weight
Stat	Display blank
Stat L	Display underload
Stat H	Display overload

Setting:
[1]) [3]) Automatic output without stability
or
Automatic output with stability
Factory setting: Manual after stability;
i.e., automatic data output function off.
[2]) Time-dependent automatic data output:
Intervals:1, 2, 10 or 100 display updates
Factory setting: 1 display update

External Keyboard Functions (PC Keyboard)

Configure under:
Setup: Device parameters: Bar code: External keyboard

The key codes implemented here are specific to the German keyboard layout. The following alphanumeric characters are implemented (some require "Shift" key):
a - z, A - Z, 0 - 9, <space>, ",.\+'<>/"$@%/();=:_?*

Function key:

PC keyboard	Combics 3
F1	→T← key
F2	→0← key
F3	⚖ key
F4	F5 soft key (far left)
F5	F4 soft key (second from left)
F6	F3 soft key (middle)
F7	F2 soft key (second from right)
F8	F1 soft key (far right)
F9	↻D↑ key
F10	↻D↑ key, long (> 2 sec) ('Info' function)
F11	SETUP key
F12	Fn key
Print	🖹 key
Return ↵	F1 soft key (far right)
Up arrow	F3 soft key (middle)
Left arrow	F4 soft key (second from left)
Down arrow	F2 soft key (second from right)
Right arrow	F1 soft key (far right)
Home	CF key
Backspace	CF soft key
ESC	CF soft key

Data Input Format

You can connect a computer to your indicator to send commands controlling scale functions and applications via the interface port. All commands use the same format, starting with the ESC character (ASCII 27) and ending with a carriage return (CR; ASCII 13) and a line feed (LF; ASCII 10). The total length of a command is anywhere from 4 characters (1 command character between the start and end described above) to 7 characters (4 command characters).

The table below shows the available command characters; each command must be flanked by the start and end characters as described above.
Example: The command character for output is “P“ (“output to Port“).
To trigger this command, send the string: ”ESC P CR LF“.

Command	Meaning
K	Weighing mode 1
L	Weighing mode 2
M	Weighing mode 3
N	Weighing mode 4
O	Block all keys
P	Output readout to data interface
Q	Output acoustic signal
	Unblock keys
T	Tare and zero (combination tare function)
13_	Zero (see also the “kZE_” command)
14_	Tare without zeroing (see also the “kT_” command)
1_	Information about the indicator Example of output: “CI3/012502/1” Meaning: Indicator: Combics 3, Software version: 012502, Active weighing platform: 1
kF1_	Trigger soft key F1 function
kF2_	Trigger soft key F2 function
kF3_	Trigger soft key F3 function
kF4_	Trigger soft key F4 function
kF5_	Trigger soft key F5 function
kP_	Trigger (⎙) key function Output to printer port
kT_	Trigger (T) key function (tare)
kNW_	Trigger (⚖) key function (Toggle the weighing platform)
kZE_	Trigger (→0←) key function (zero)
x1_	Output model designation of active weighing platform. Example: “LP6200S-0CE ”
x2_	Output serial number of active weighing platform. Example: “0012345678 ”
x3_	Output software version of active weighing platform. Example: “ 00-20-05 ”
x4_	Output software version of indicator. Example: “ 01-26-01 ”
x9_	Output serial number of indicator. Example: “0012345678 ”
x10_	Output model of indicator. Example: “CW3P4-1500RR-LCE”
z1_	Activate input for printout header 1
z2_	Activate input for printout header 2

The ASCII code for the “underline” character (“_”) is 95.

Format for entering printout header lines: ESC z x a ... a _ CR LF where x=(header line) 1 or 2; a...a= up to 20 characters of text, followed by the “underline” character, carriage return and line feed.

Synchronization
Data is communicated between the indicator and a computer in the form of messages (“telegrams”) made up of ASCII code. For error-free data communication, the settings for baud rate, parity, handshake mode and character format must
be the same at both ends.

You can configure the interface settings in the Setup menu so that they match those of the computer. You can also define parameters in the indicator to make data output dependent on various conditions. Details on conditional data output are provided in the “Basic Application Programs” manual for the Combics 3.

If you do not connect a peripheral device to the indicator’s interface port, this will not generate an error message.

Handshake
The scale interface (Sartorius Balance Interface = SBI) has transmit and receive buffers. You can define the handshake parameter in the Setup menu:

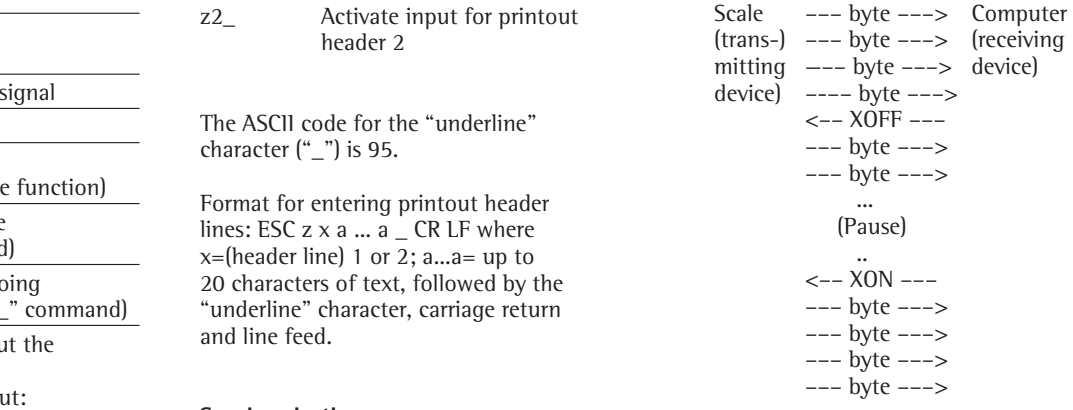
- Hardware handshake (CTS/DTR)
- Software handshake (XON, XOFF)

Hardware Handshake
With a 4-wire interface, 1 more character can be transmitted after CTS (“clear to send”).

Software Handshake
The software handshake is controlled via XON and XOFF. When a device switched on, XON must be transmitted to enable a connected device to communicate.

When the software handshake is configured in the Setup menu, the hardware handshake becomes active after the software handshake.

The data transmission sequence is as follows:



Transmitting Device

Once XOFF has been received, it prevents further transmission of characters. When XON is received, it re-enables the transmitting device to send data.

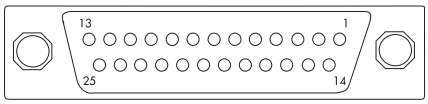
Receiving Device

To prevent too many control commands from being received at one time, XON is not transmitted until the buffer is almost empty.

Pin Assignment Charts

Model CW3P (IP66/67 Protection)
COM1 and COM2 female connectors:

25-contact D-Submini female connector (DB25S) with screw lock hardware



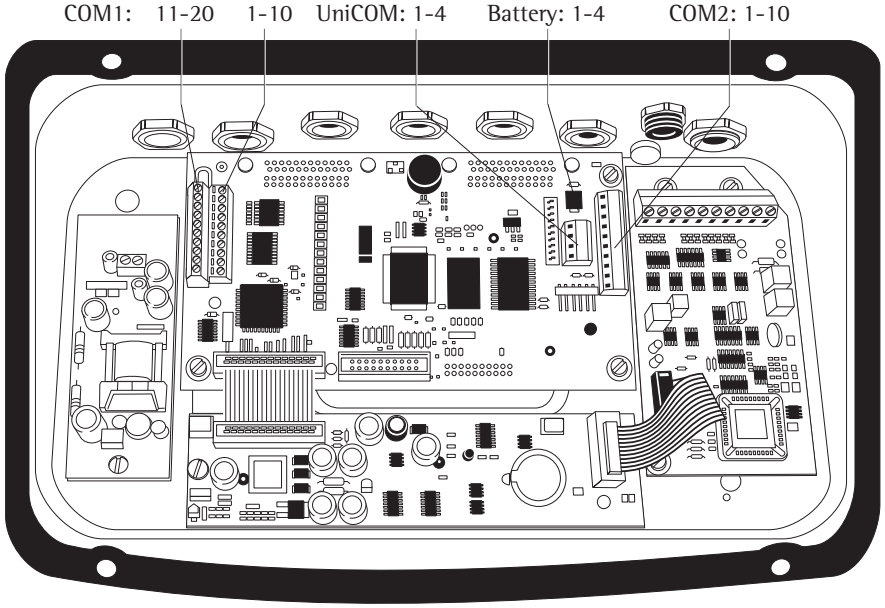
Front view

Male interface connector used (please use connectors with the same specifications):
25-pin D-Submini (DB25) with integrated shielded cable clamp assembly (Amp type 826 985-1C) and fastening screws (Amp type 164868-1)

Pin assignments COM1 (RS-232)

Pin 1: Shield
Pin 2: Data output (TxD)
Pin 3: Data input (RxD)
Pin 4: Not connected
Pin 5: Clear to send (CTS)
Pin 6: Internally connected
Pin 7: Internal ground (GND)
Pin 8: Internal ground (GND)
Pin 9: Not connected
Pin 10: Not connected
Pin 11: +12 V for printer
Pin 12: RES_OUT\
Pin 13: +5 V
Pin 14: Internal ground (GND)
Pin 15: Universal switch
Pin 16: Control output “lighter”
Pin 17: Control output “equal”
Pin 18: Control output “heavier”
Pin 19: Control output “set”
Pin 20: Data terminal ready (DTR)
Pin 21: Supply ground (GND)
Pin 22: Not connected
Pin 23: Not connected
Pin 24: Power supply +15...25 V (peripherals)
Pin 25: +5 V

Model CW3S:
Terminals on the PCB

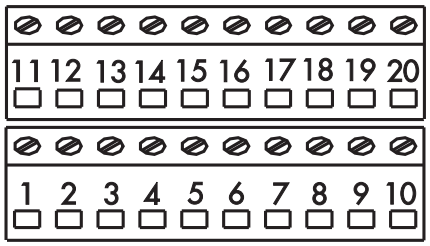


Pin assignments, COM2: RS-232, RS-422 or RS-485 (optional UniCOM interface not installed)
Option A11: RS-232 factory set,
Option A12: RS-485 factory set,
RS-422: see “Setting the Interface Operating Mode for COM2” below for details on solder bridge coding.

Pin 1: Shield
Pin 2: RS-232: Data output (TxD)
RS-422: Data output (TxD)
RS-485: Data + (TxD-RxD+)
Pin 3: RS-232: Data input (RxD),
RS-422: Data input + (RxD),
RS-485: Not connected
Pin 4: Internal ground (GND)
Pin 5: RS-232: Clear to send (CTS),
RS-422: Data input - (RxD-),
RS-485: Not connected
Pin 6: Internally connected
Pin 7: Internal ground (GND)
Pin 8: Not connected
Pin 9: Not connected
Pin 10: Not connected
Pin 11: +12 V for printer
Pin 12: RES_OUT\
Pin 13: +5 V switch
Pin 14: Internal ground (GND)
Pin 15: Keyboard data
Pin 16: Not connected
Pin 17: Not connected
Pin 18: Not connected
Pin 19: Keyboard clock
Pin 20: RS-232: Data terminal ready (DTR),
RS-422: Data output - (TxD-),
RS-485: Data - (TxD-RxD-)
Pin 21: LINE_GND
Pin 22: LOW_BATT
Pin 23: BATT_ON_OFF
Pin 24: LINE_1_B
Pin 25: +5 V

Models CW3S, CW3FS, CH3E, CH3G (IP67 Protection):
Connecting open cable ends to terminal screws inside the indicator

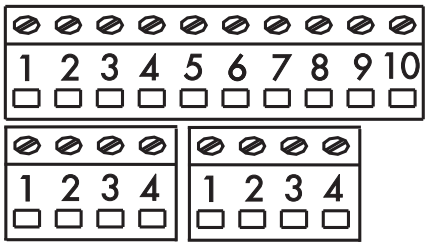
Com1 interface connection:



Top view

Terminal assignments

No. 1: Universal switch
No. 2: Control output “set”
No. 3: Control output “heavier”
No. 4: Control output “equal”
No. 5: Control output “lighter”
No. 6: Clear to send (CTS)
No. 7: Data output (TxD)
No. 8: Data input (RxD)
No. 9: Data terminal ready (DTR)
No. 10: Internal ground (GND)
No. 11: LINE_A
No. 12: LINE_A
No. 13: GND_LINE
No. 14: GND_LINE
No. 15: +12 V for printer
No. 16: Reset output
No. 17: +5 V
No. 18: +5 V
No. 19: Ground (GND)
No. 20: Ground (GND)



Connections in the CW3S

Diagram (on the left): top view

Terminal assignments in the 10-contact COM2 terminal strip:

	RS-232	RS-422	RS-485
No. 1:	Not connected	Not connected	Not connected
No. 2:	GND	GND	GND
No. 3:	GND	GND	GND
No. 4:	+5 V switch	+5 V switch	+5 V switch
No. 5:	Data terminal ready (DTR)	Data output - (TxD-)	Data - (TxD-RxD-)
No. 6:	Keyboard clock	Keyboard clock	Keyboard clock
No. 7:	Keyboard data	Keyboard data	Keyboard data
No. 8:	Clear to send (CTS)	Data input - RxD-)	Not connected
No. 9:	Data input (RxD)	Data input + (RxD+)	Not connected
No. 10:	Data output (TxD)	Data output + (TxD+)	Data + (TxD-RxD+)

Terminal assignments in the 4-contact terminal strip on the left-hand side
(for rechargeable battery)

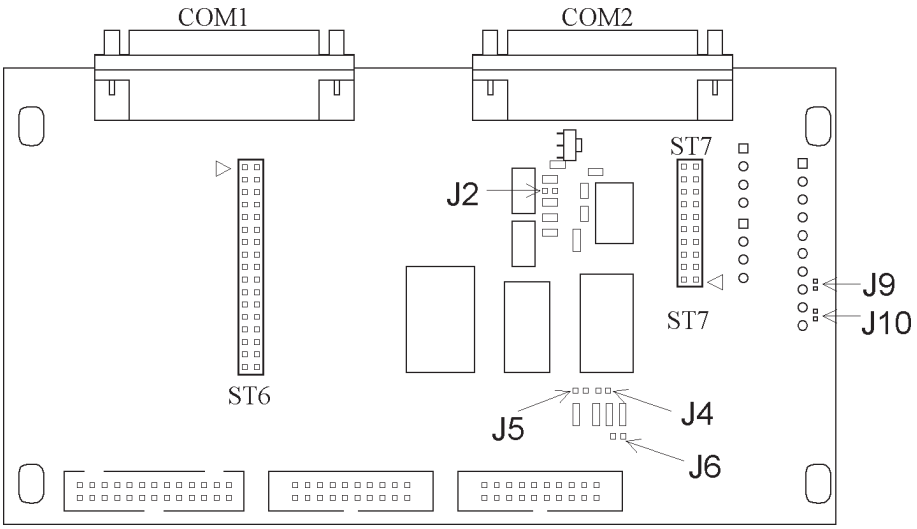
No. 1:	GND_LINE
No. 2:	LINE_B
No. 3:	LOW_BATT
No. 4:	BATT_ON_OFF

Terminal assignments in the 4-contact terminal strip on the right-hand side
(for UniCOM interface)

	RS-232	RS-422	RS-485
No. 1:	Clear to send (CTS)	Data input - (RxD-)	Not connected
No. 2:	Data input (RxD)	Data input + (RxD+)	Not connected
No. 3:	Data output (TxD)	Data output + (TxD+)	Data + (TxD-RxD+)
No. 4:	Data terminal ready (DTR)	Data output - (TxD-)	Data - (TxD-RxD-)

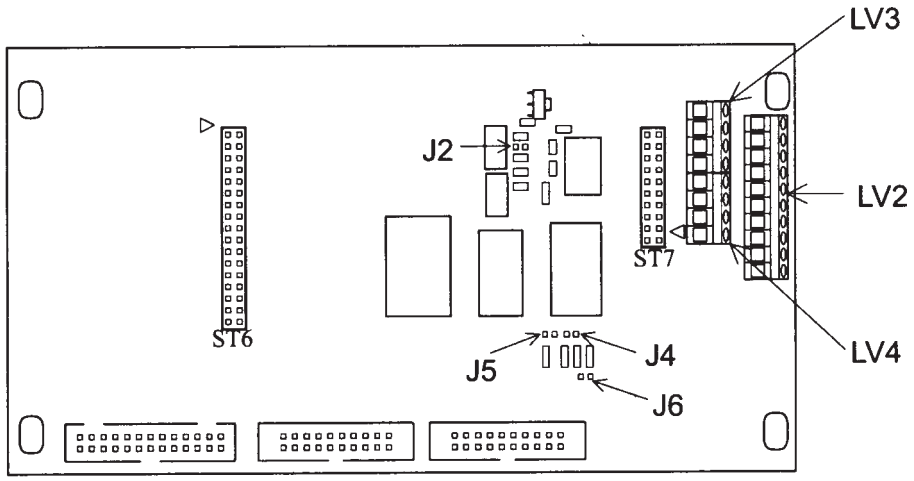
	Profibus
No. 1:	Not connected
No. 2:	Not connected
No. 3:	Not connected
No. 4:	Not connected

Setting the Interface Operating Mode for COM2



Coding for COM2 in Model CW3P

	RS-232	RS-422	RS-485
Solder bridge J2:	open	closed	closed
Solder bridge J9:	open	open	closed
Solder bridge J10:	open	open	closed



Coding for COM2 in Model CW3S, CW3FS, CH3E, CH3G

	RS-232	RS-422	RS-485
Solder bridge J2:	open	closed	closed
Terminals 5 and 8 on the 10-terminal COM2 strip:	open	open	closed
Terminals 9 and 10 on the 10-terminal COM2 strip:	open	open	closed

120-ohm terminating resistors for RS-422 and RS-485

	RS-422	RS-485
Solder bridge J4:	closed	closed

Bias resistors (for RS-485 only)

	RS-485
Solder bridge J5:	closed
Solder bridge J6:	closed

Connecting Cables to Interfaces

Cables should be connected by a certified technician who has received specialized training from Sartorius.

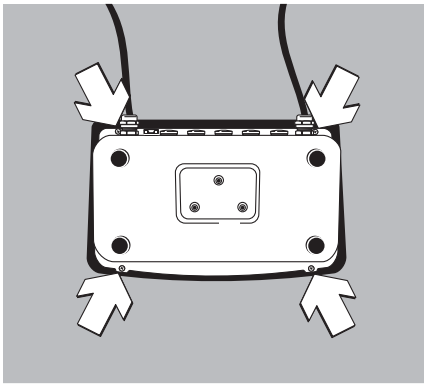
⚠ Make sure to disconnect the equipment from power before connecting cables.

⚠ Installation work that affects the IP67 protection rating must be performed with extreme care.

⚠ Any installation work that does not conform to the instructions in this manual results in forfeiture of all claims under the manufacturer's warranty.

⚠ Always make sure the equipment is disconnected from power before performing any installation, maintenance or repair work.

⚠ An IP67-protected cable gland for connecting a weighing platform is installed on the indicator at the factory. The other openings in the housing are sealed with protective caps. Please use extreme caution when performing any work on the equipment that affects this cable gland.

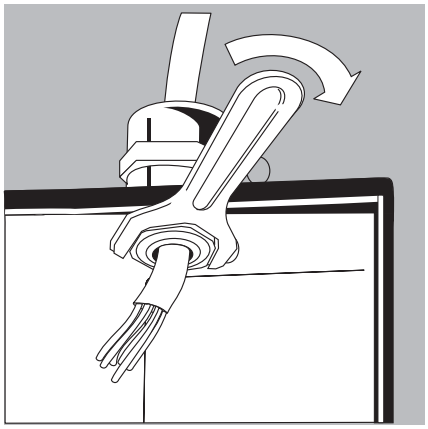


● Remove the four screws as indicated in the illustration and then remove the front panel from the indicator.

● Connect the cable from the peripheral device to the indicator.

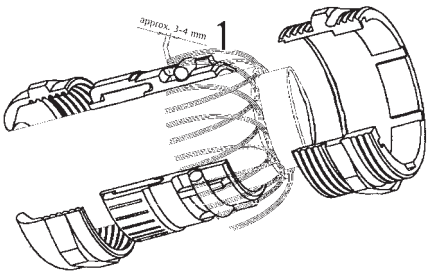
⚠ The cable is prepared at the factory for installation in the Combics indicator. The cable gland is installed at the factory.

⚠ Please use extreme caution when performing any work on the equipment that affects this cable gland. Use a torque wrench and tighten the cable gland to 5 Nm.

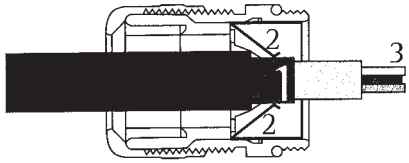


● Connect the cable as follows:

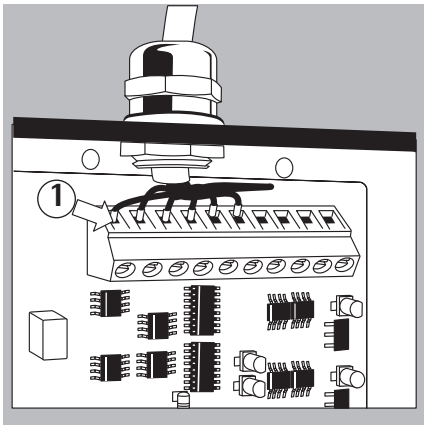
– Remove the protectice caps from the bore holes. If there is a cable connected to terminals for both COM1 (LV1) and COM2 (LV2 and LV3), use the bore hole in the middle of the housing.
– Guide the cable with the cable gland through the bore hole
– Install the cable gland in accordance with the clamp is in contact with the shielding, because the cable is grounded by the shield applicable regulations.
– Make sure the clamp is in contact with the shielding, because the cable is grounded by the shield applicable regulations.



- Connect the cable inside the housing as follows:
- Route the cable through the cable gland.
- Close and tighten the cable gland in accordance with the applicable regulations.
- Strip the casing from a section of the cable end (see illustration). The shielding (1) must have contact with the clamps (2).



- Expose approx. 15 cm (6 inches) of the individually isolated wires (3) for installation.
- Route the cable through the cable gland.
- Make sure the shield is in contact with the clamps, because the cable is grounded by the shield.



- Connecting the wires inside the indicator:
- Expose approximately 5 cm (2 inches) of the isolated wires for installation.
- Remove approximately 1 cm (1/2 inch) of the isolation from the wires and affix ferrules to the wire ends.
- Connect the wires securely in accordance with the terminal assignments.

- After you close the housing again, use a pressure gauge to check the integrity of the IP65/67-protection. For details, contact the Sartorius Service Center.

Cabling Diagram (Adapter Cable for PC)
(CW3P indicator: Adapter cable 7357312; CW3S indicator: Adapter cable YCC02-D9F6). Diagram for connecting a computer or other peripheral device to the indicator using the RS-232-C/V24 standard and cables up to 15 m (50 ft.) long:

Cabling Diagrams

Connection assignments for the cable from the indicator to an RS-232 PC interface.

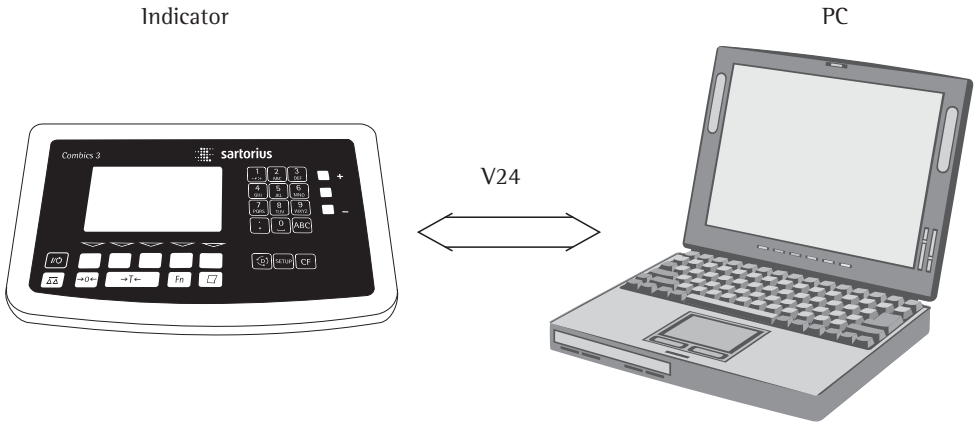
25-pin D-Sub male connector (Model CW3P) — 9-contact D-Sub female connector

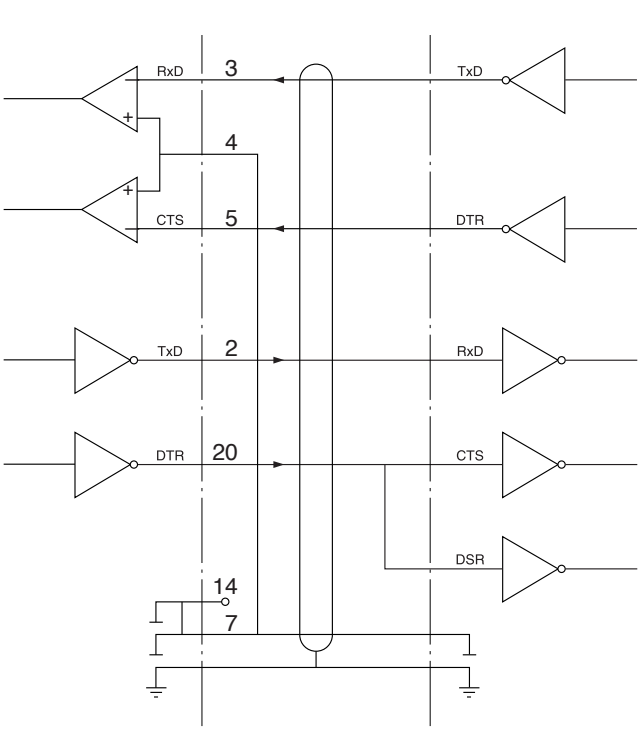
		1			
	Sgn GND	7	5	GND	
Indicator	TxD	2	2	RxD	
side	RxD	3	3	TxD	PC side
	DTR	20	8	CTS	
	CTS	5	4	DTR	

Open cable end (Model CW3S) — 9-contact D-Sub female connector

	Sgn GND	10	5	GND	
Indicator	TxD	7	2	RxD	
side	RxD	8	3	TxD	PC side
	DTR	9	8	CTS	
	CTS	6	4	DTR	

Cabling Diagram (Adapter Cable for PC)





	PC	
25 pin	or	9 pin
2		3
20		4
3		2
5		8
6		6
7		5

Cable type: AWG 24 specification

Error Codes

Error codes are shown on the main display. *ERR* codes are shown continuously; *INF* messages are displayed for 2 seconds, after which the program returns automatically to the weighing mode.

Error Code	Cause	Solution
ERR 101 - 104	Key is stuck Key pressed at power on	Release key or Contact your local Sartorius Service Center
ERR 320	Program memory defective	Contact your local Sartorius Service Center
ERR 335	Verified weighing platform not compatible	Connect a compatible weighing with the connected terminal platform
ERR 340	Operating parameter memory (EEPROM) defective	Turn the scale off and then on again If the error code is still displayed, please contact your local Sartorius Service Center
ERR 341	Data lost from RAM; needs to be recharged	Leave the scale connected to power battery for at least 10 hrs.
ERR 343	Loss of data in the memory area for transaction numbers in external Alibi memory	Contact your local Sartorius Service Center
INF 01	Data output not compatible with output format	Change the menu settings
INF 02	Calibration/adjustment condition not met; e.g., - the scale was not tared - the scale is loaded	Calibrate only when zero is displayed Press →T← to tare Unload the scale
INF 03	Calibration/adjustment could not be completed within a certain time	Allow the scale to warm up and then repeat the adjustment process
INF 06	Built-in calibration weight defective	Contact your local Sartorius Service Center
INF 07	Function not allowed in scales verified for use in legal metrology	Contact your local Sartorius Service Center for information on changing settings
INF 08	The load on the scale is too heavy to zero the readout	Check whether “Tare/zero at power on” is set
INF 09	Taring is not possible when the gross weight is ≤ zero	Zero the scale
INF 10	Tare key is blocked when there is data in the tare memory	The data stored for the application program must be deleted before taring
INF 22	Error in storing reference value, load is too light	Put a heavier sample on the scale
INF 23	Error in initializing an application	Contact your local Sartorius Service Center
INF 29	Minimum load not reached	Define a lower value for the minimum load (in the “Application parameters,” under “Minimum load for initialization”
INF 71	Cannot store the current weight value (e.g., control limits too low or too high)	None
INF 72	Cannot store the current weight value (e.g., the transaction counter has reached its limit)	None
INF 73	Data not found or unreadable	Contact your local Sartorius Service Center
INF 74	Function is blocked (e.g., menu is locked)	None
INF 98	No weighing platform connected	Contact your local Sartorius Service Center
INF 99	No weighing platform connected	Contact your local Sartorius Service Center
NO WP	No weighing platform connected	Contact your local Sartorius Service Center

Care and Maintenance

Service
Regular servicing by a Sartorius technician will extend the service life of your Combics scale and ensure its continued weighing accuracy. Sartorius can offer you service contracts, with your choice of regular maintenance intervals ranging from 1 month to 2 years.

The optimum length of the service interval depends on the operating conditions at the place of installation and on your requirements.

Cleaning
⚠ Unplug the equipment from the AC adapter or power supply before cleaning.

○ Observe your company's internal regulations as well as standard industry guidelines with regard to cleaning intervals and cleaning agents.

○ If the scale is located in a dry room, wipe down the weighing platform with a damp cloth. You can use common household cleaning agents. Follow the cleaning agent manufacturer's instructions.

⚠ Never use concentrated acids, alkali solutions, solvents or pure alcohol to clean the equipment.

○ If the scale is located in a wet room, clean the weighing platform from above with a weak water jet (max. 60°C).

⚠ Do not use high-pressure cleaning equipment to clean the weighing platform.
> If the water that you use to clean the weighing platform is too hot or too cold, the difference in temperature between the water and the weighing platform can cause condensation within the weighing platform. This condensation can lead to malfunctions in the equipment.

○ If the weighing platform is installed in a pit, make sure that no dirt accumulates between the edge of the pit and the weighing platform. This will help prevent measuring errors.

○ Regularly remove all dirt from the floor of the pit.

Cleaning the Interior of the Weighing Platform
Important note:
This does not apply to CH model platforms.
○ If dirt gets inside the weighing platform, the load plate has to be removed to clean the weighing platform interior. Particular caution is advised when working with models 1000 × 1000 mm or larger.
○ Blow out the interior with pressurized air or rinse with a weak water jet (max. 60°C).
Make sure that no dirt builds up in the gap between the load receptor and the fastening plate to avoid compromising the overload protection.

Cleaning Stainless Steel Surfaces
Clean all stainless steel parts regularly. We recommend removing the stainless steel load plate and cleaning it separately, outside the hazardous area. Use a damp cloth or sponge to clean any stainless steel parts on the scale. You can use any commercially available household cleaning agent that is suitable for use on stainless steel. Clean stainless steel surfaces by wiping them down.
Then clean the load plate thoroughly, making sure to remove all residues.
Use a damp cloth or sponge to wipe down any stainless steel parts on the weighing platform again and allow the equipment to dry. If desired, you can apply oil to the cleaned surfaces as additional protection.
⚠ Do not use stainless steel cleaning agents that contain soda lye, ethanoic acid, hydrochloric acid, sulphuric acid or citric acid. The use of scrubbing sponges made with steel wool is not permitted.
Solvents are permitted for use only on stainless steel parts.

Corrosive Environment
○ Remove all traces of corrosive substances from the weighing platform on a regular basis.

Replacing the Dust Cover
> Replace damaged dust covers.
● Place the new dust cover on the indicator and press down on the front and back along the edges until the cover is firmly seated.

Safety Inspection
Safe operation of the device is no longer ensured when:
- there is visible damage to the device or power cord
- the built-in power supply no longer functions properly
- the device has been stored for a relatively long period under unfavorable conditions (e.g., extreme moisture)
- the equipment has been subjected to rough handling during shipment.

If there is any indication that safe operation of the device is no longer warranted:
● Disconnect from AC power (unplug the equipment from the wall outlet (mains supply))
> Lock the equipment in a secure place to ensure that it cannot be used for the time being
● Notify your nearest Sartorius Service Center or the International Technical Support Unit based in Goettingen, Germany.

Maintenance and repair work may be performed only by authorized Sartorius service technicians who:
- have access to the required service and maintenance manuals, and
- have attended the relevant service training courses.

⚠ The seals affixed to this equipment indicate that the equipment may be opened only by authorized service technicians, to ensure safe and trouble-free operation of the equipment and to maintain the conditions for warranty coverage. If the verification seals are damaged, the equipment must be reverified.

Recycling

In Germany and many other countries (see www.sartorius.com, Service Download area for details), Sartorius AG or the organization contracted by us takes care of the return and legally compliant disposal of its electrical and electronic equipment on its own.

In countries that are not members of the European Economic Area (EEA) or where no Sartorius subsidiaries or dealerships are located, please contact your local authorities or a commercial disposal operator.

These products may not be placed together with the household waste or brought to collection centers run by local public disposal operations – not even by small commercial operators.

For disposal in Germany and in the other member nations of the European Economic Area (EEA), please contact our Service technicians on location or our Service Center in Goettingen, Germany:

Sartorius AG
Service Center
Weender Landstrasse 94-108
37075 Goettingen, Germany

Prior to disposal and/or scrapping of the equipment, any batteries should be removed and disposed of in local collection boxes.

Sartorius AG, its affiliates, subsidiaries, dealers and distributors will not take back equipment contaminated with hazardous materials (ABC contamination) – either for repair or disposal.

Please refer to the accompanying leaflet/manual or visit our Internet website (www.sartorius.com) for comprehensive information that includes our service addresses to contact if you plan to send your equipment in for repairs or proper disposal.

If you no longer need the packaging after successful installation of the equipment, you should return it for recycling. The packaging is made from environmentally friendly materials and is a valuable source of secondary raw material.

The equipment, including accessories and batteries, does not belong in your regular household waste.

Overview

Common Specifications

Maximum readability	31,250 scale intervals (not in legal metrology)
Accuracy class	Ⓘ (for "..-.CE" models)
Verification scale intervals	≤3000e, (single-range scale) or 2 × 3000e (multiple range scale acc. to EN45501)
Digital protective interface	in accordance with EN45501
Data interface	Bi-directional RS-232 with control outputs (standard equipment)
Additional data interface	optional
Display	108 × 58 mm graphic display, backlit
Housing: Material Dust and water protection acc. to EN60529	 AISI 304 stainless steel CW3P: IP44 (optional IP65) CW3S/FS: IP67
Operating temperature range	–10°C to +40°C (+14°F to +104°F)
Power supply DC supply AC supply Battery operation	100–240 VAC (–15/+10 %), 50–60 Hz, max. 17 W/23 VA optional 15.5–24 VDC (±10%), max. 12 W optional 13–17 VAC (±10%), 50–60 Hz, max. 12 W External rechargeable battery pack YBR10Z
Emissions	Acc. to EN61326+A1 Class B (IEC 61326+A1)
Immunity to interference	Acc. to EN61326+A1, industrial areas (IEC61326+A1)
Electrical safety	acc. to EN61010-1 (IEC 1010-1), EN60950 (IEC 950)

Model-specific Specifications

Model code:	**CW...-L**	**CW...-I**	**CW...-LCE**	**CW....-NCE (2×3000e)**			
Type/Approval			**Sartics (D04-09-015) + TN (D09-03.13)**				
	Readability	**Readability**	**Readability**	**Weighing range 1**		**Weighing range 2**	
Weighing capacity	**15000d**	**30000d**	**1×3000e**	**Max. capacity**	**Readability**	**Max. capacity**	**Readability**
3 kg	0.2 g	0.1 g	1 g	1.5 kg	0.5 g	3 kg	1 g
6 kg	0.5 g	0.2 g	2 g	3 kg	1 g	6 kg	2 g
15 kg	1 g	0.5 g	5 g	6 kg	2 g	15 kg	5 g
30 kg	2 g	1 g	10 g	15 kg	5 g	30 kg	10 g
60 kg	5 g	2 g	20 g	30 kg	10 g	60 kg	20 g
150 kg	10 g	5 g	50 g	60 kg	20 g	150 kg	50 g
300 kg	20 g	10 g	100 g	150 kg	50 g	300 kg	100 g
600 kg	50 g	20 g	200 g	300 kg	100 g	600 kg	200 g
1500 kg	100 g	50 g	500 g	600 kg	200 g	1500 kg	500 g
3000 kg	200 g	100 g	1000 g	1500 kg	500 g	3000 kg	1000 g

Key to Model Designations

CH3E
Reference device

CH3G
Information on metrological label

Key to model designations for Combics high resolution complete scales

Model ID:	Load range	Readability e=(g), d=(g)	Verification scale interval	Dimensions	Max (kg)	Min (g)	
CH3E							
-16ED/-H	16	0.1	-	400x300x120	16	-	-
-16ED/-HCE	16	0.1	1	400x300x120	16	5	1
-34ED/-H	34	0.1	-	400x300x120	34	-	-
-34ED/-HCE	34	0.1	1	400x300x120	34	5	1
-64ED/-S	64	1	-	400x300x120	64	-	-
-64ED/-SCE	64	1	10	400x300x120	64	50	10
-64ED/-H	64	0.1	-	400x300x120	64	-	-
CH3G							
-64FE/-S	64	1	-	560x450x95	64	-	-
-64FE/-SCE	64	1	10	560x450x95	64	50	10
-1501G/-H	150	1	-	800x600x117	150	-	-
-1501G/-HCE	150	1	10	800x600x117	150	50	10
-3001G/-H	300	2	-	800x600x117	300	-	-
-3001G/-HCE	300	20	20	800x600x117	300	1000	20

CH3E

Application	Version/ Platform base	Weighing capacity	Platform dimensions	Resolution	Resolution Legal for trade version	Type and approval
CH3	E	-16	ED	-H	-HCE	Type iso-Test+BFBF D97-09-018 +D09-096.30
	E	-34	ED	-H	-HCE	Type iso-Test+BFBF D97-09-018 +D09-096.30
	E	-64	ED	-S	-SCE	Type iso-Test+BFBF D97-09-018 +D09-096.30

Order code E: Base coated with epoxy resin; Order code ED: 400 × 300 mm

CH3G

Application	Version/ Platform base	Weighing capacity	Platform dimensions	Resolution	Resolution Legal for trade version	Type and approval
CH3	G	-64	FE	-S	-SCE	Type iso-Test+HABD D97-09-018 +D09-95.18
	G	-150	1G	-H	-HCE	Type iso-Test+HCBF D97-09-018 +D09-96.30
	G	-300	1G	-H	-HCE	Type iso-Test+HCBF D97-09-018 +D09-96.30

G = galvanized/electroplated
Order code FE: 560 × 450 mm; Order code 1G: 560 × 450 mm

Resolutions for CH*E and CH*G:

Resolution	
H	Resolution > 100,000d, not verified for legal metrology
HCE	Verified for legal metrology at CE factory, single range class II, > 10,000e, e = 10d
S	Resolution > =60,000d, not verified for legal metrology
SCE	Verified for legal metrology at CE factory, single range class II, < 10,000e, e = 10d

Key to Model Designations

Here is an example of how to put together order numbers. CW3P1-60 FE-LCE means the following:

Complete Combics scale with indicator 3	**(CW3P...)**;
With one load cell	**(...1...)**;
A maximum, single-range weighing capacity of 60 kg	**(...60...)**;
A platform size of 500 × 400 mm	**(...FE...)**; and
A resolution of 3,000 e for accuracy class (III)	**(...LCE)**

Complete Combics scale

CW3P

With selectable application programs. Indicator with 20 mm LCD, backlit; integrated LEDs (red-green-yellow) for checkweighing or classification; RS-232C interface port as a standard feature; port for bar code scanner or optional battery pack.

Applications: weighing; counting; checkweighing; classification into 3 or 5 classes; totalizing; net-total formulation; filling; weighing in percent; neutral measurement; animal weighing. Indicator material: stainless steel. Type of protection: IP 44.

Applications	Material | Design	Number of load cells		Capacity (kg)	Platform size mm | order code			Resolution
CW3	**P**	**1**	**-**	**60**	**FE**		**-**	**LCE**

1		320×240	**(DC)**	**L**
1	**6 kg**	320×240	**(DC)**	15,000 d
1	**15 kg**	320×240	**(DC)**	
1	**30 kg**	400×300	**(ED)**	
1		500×400	**(FE)**	**I**
1	**60 kg**	400×300	**(ED)**	30,000 d
1		500×400	**(FE)**	
1		650×500	**(GF)**	
1		800×600	**(IG)**	**LCE**
1	**150 kg**	500×400	**(FE)**	3,000 e
1		650×500	**(GF)**	(verification
1		800×600	**(IG)**	scale
4		800×800	**(II)**	intervals)
4		1,000×1,000	**(LL)**	
4		1,250×1,250	**(NN)**	
1	**300 kg**	650×500	**(GF)**	
1		800×600	**(IG)**	
4		800×800	**(II)**	
4		1,000×1,000	**(LL)**	
4		1,250×1,250	**(NN)**	
4	**600 kg**	800×800	**(II)**	**NCE**
4		1,000×800	**(LI)**	2×3,000 e
4		1,000×1,000	**(LL)**	(verification
4		1,250×1,000	**(NL)**	scale
4		1,250×1,250	**(NN)**	intervals in
4		1,500×1,250	**(RN)**	multiple-
4		1,500×1,500	**(RR)**	range
4		2,000×1,500	**(WR)**	scales)
4	**1500 kg**	800×800	**(II)**	
4		1,000×800	**(LI)**	
4		1,000×1,000	**(LL)**	
4		1,250×1,000	**(NL)**	
4		1,250×1,250	**(NN)**	
4		1,500×1,250	**(RN)**	
4		1,500×1,500	**(RR)**	
4		2,000×1,500	**(WR)**	
4	**3000 kg**	800×800	**(II)**	
4		1,000×800	**(LI)**	
4		1,000×1000	**(LL)**	
4		1,250×1,000	**(NL)**	
4		1,250×1,250	**(NN)**	
4		1,500×1,250	**(RN)**	
4		1,500×1,500	**(RR)**	
4		2,000×1,500	**(WR)**	

CW3S4–1500RR–L, our example of a complete, stainless steel scale, means the following:

Complete Combics stainless steel scale with indicator 3	**(CW3S...)**;
With four load cells	**(...4...)**,
A maximum, single-range weighing capacity of 1,500kg	**(...1500...)**;
A platform size of 1,500×1,500 mm	**(...RR...)**; and
A resolution of 15,000 digits	**(...L)**

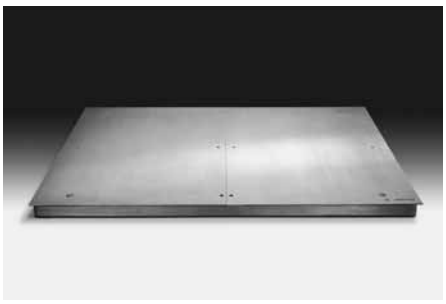
Complete Combics stainless steel scale

CW3S

With selectable application programs. Indicator with 20 mm LCD, backlit; integrated LEDs (red-green-yellow) for checkweighing or classification; RS-232C interface port as a standard feature; port for bar code scanner or optional battery pack.

Applications: weighing; counting; checkweighing; classification into 3 or 5 classes; totalizing; net-total formulation; filling; weighing in percent; neutral measurement; animal weighing. Indicator material: completely made of stainless steel. Type of protection: IP67.

Applications	Material | Design	Number of load cells		Capacity (kg)	Platform size mm | order code			Resolution
CW3	**S**	**4**	**-**	**1500**	**RR**		**-**	**L**
		1		**3 kg**	320×240	**(DC)**		**L**
		1		**6 kg**	320×240	**(DC)**		15,000 d
		1		**15 kg**	320×240	**(DC)**		
		1		**30 kg**	400×300	**(ED)**		
		1			500×400	**(FE)**		**I**
		1		**60 kg**	400×300	**(ED)**		30,000 d
		1			500×400	**(FE)**		
		4			650×500	**(GF)**		
		4			800×600	**(IG)**		**LCE**
		1		**150 kg**	500×400	**(FE)**		3,000 e
		4			650×500	**(GF)**		(verifica-
		4			800×600	**(IG)**		tion scale
		4			800×800	**(II)**		intervals)
		4			1,000×1,000	**(LL)**		
		4			1,250×1,250	**(NN)**		
		4		**300 kg**	650×500	**(GF)**		
		4			800×600	**(IG)**		
		4			800×800	**(II)**		
		4			1,000×1,000	**(LL)**		
		4			1,250×1,250	**(NN)**		
		4		**600 kg**	800×600	**(IG)**		**NCE**
		4			800×800	**(II)**		2×3,000 e
		4			1,000×800	**(LI)**		(verifica-
		4			1,000×1,000	**(LL)**		tion scale
		4			1,250×1,000	**(NL)**		intervals in
		4			1,250×1,250	**(NN)**		multiple-
		4			1,500×1,250	**(RN)**		range
		4			1,500×1,500	**(RR)**		scales)
		4			2,000×1,500	**(WR)**		
		4		**1500 kg**	800×800	**(II)**		
		4			1,000×800	**(LI)**		
		4			1,000×1,000	**(LL)**		
		4			1,250×1,000	**(NL)**		
		4			1,250×1,250	**(NN)**		
		4			1,500×1,250	**(RN)**		
		4			1,500×1,500	**(RR)**		
		4			2,000×1,500	**(WR)**		
		4		**3000 kg**	800×800	**(II)**		
		4			1,000×800	**(LI)**		
		4			1,000×1,000	**(LL)**		
		4			1,250×1,000	**(NL)**		
		4			1,250×1,250	**(NN)**		
		4			1,500×1,250	**(RN)**		
		4			1,500×1,500	**(RR)**		
		4			2,000×1,500	**(WR)**		



CW3S4-1500RR-L, our example of a complete food scale looks like this:

Complete Combics Food Scale, stainless steel	
with indicator 3	**(CW3S...)**,
with one load cell, a maximum, single-range	**(...1...)**,
weighing capacity of 150 kg,	**(...150...)**,
a platform size of 500 × 400 mm	**(...FE...)**
and a resolution of 15,000 digits	**(...L)**

Complete Combics Food Scales

CW3S

With selectable application programs. Dot-matrix display, backlit. Integrated LEDs (red-green-yellow) for checkweighing or classification; RS-232C interface port as a standard feature; port for barcode scanner or rechargeable battery pack.

Applications: weighing, average weight control, counting, checkweighing, classification into 3 or 5 classes, totalizing, net-total formulation, filling, weighing in percent, neutral measurement, animal weighing. Indicator made completely of stainless steel. Type of protection: IP67.

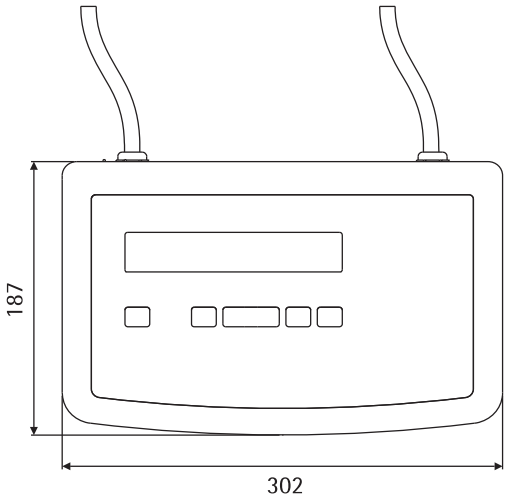
Applications	Material/ Design	Number of Load Cells		Capacity (kg)	Platform Size mm | Order Code			Readability in g*				
CW3S	FS	1	-	150	FE		-	-L	-I	-LCE	-NCE	
		**1**		**3 kg**	320x240	**(DC)**		0.2	0.1	1	0.5	1
		1		**6 kg**	320x240	**(DC)**		0.5	0.2	2	1	2
		1		**15 kg**	320x240	**(DC)**		1	0.5	5	2	5
		1		**30 kg**	400x300	**(ED)**		2	1	10	5	10
		1			500x400	**(FD)**						
		1		**60 kg**	400x300	**(ED)**		5	2	20	10	20
		1			500x400	**(FE)**						
		1		**150 kg**	500x400	**(FE)**		10	5	50	20	50

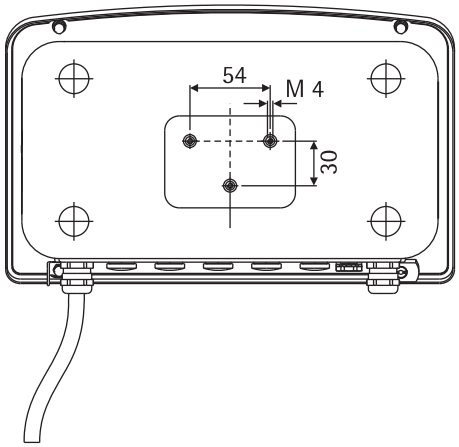
*** Resolution : L=**15,000 d, **I=**30,000 d, **LCD=**3,000 e (verification scale intervals), **NCE=**2x3,000 e (verification scale intervals for multiple range instruments)

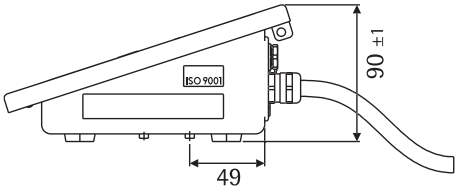
Overview

Dimensions (Scale Drawings)

Indicators:

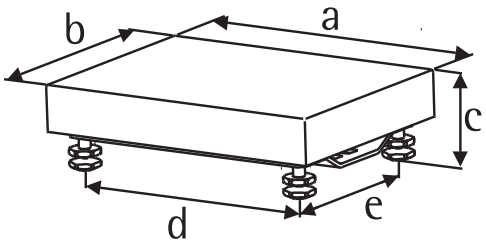






All dimensions are given in millimeters

Weighing Platforms:

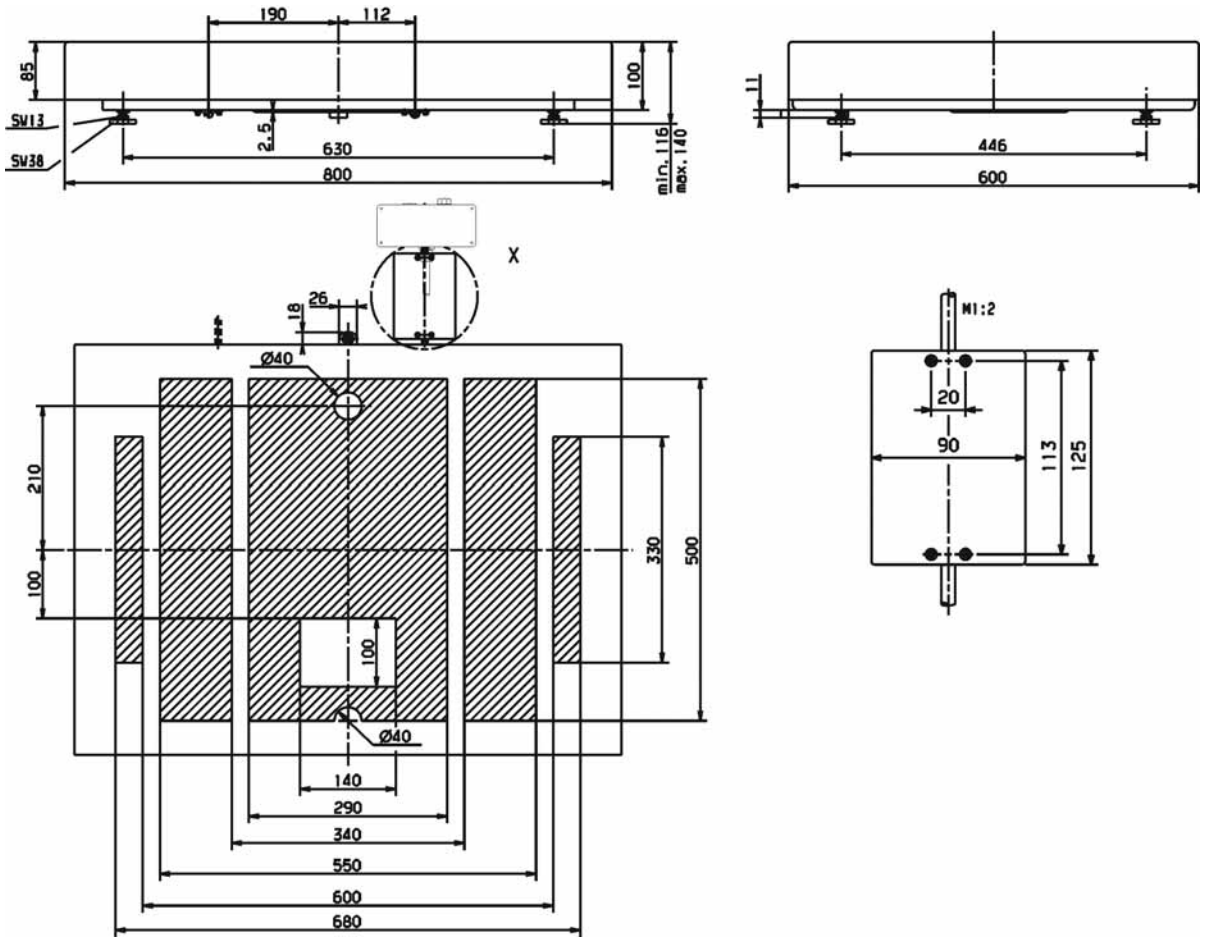


Standard and Stainless Steel Versions

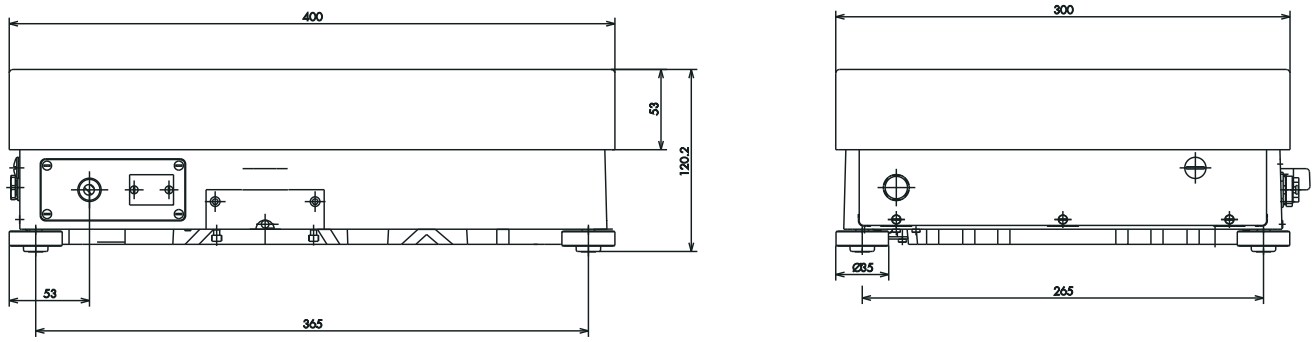
Length	Width	Height, standard version	Height, stainless steel version	Distance between feet, standard version		Distance between feet, stainless steel version		Cable length
a	b	c	c	d	e	d	e	
(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(m) approx.
320	240	72	82	264	184	264	184	1.5
400	300	94	101	344	244	344	244	1.5
500	400	96	104	443	343	443	343	1.5 (painted) | 3.0 (stainless steel)
650	500	145	90	530	434	550	400	3.0
800	600	145	90	680	534	700	500	3.0
800	800	90	90	604	604	604	604	6.0
1,000	800	90	90	804	604	804	604	6.0
1,000	1,000	90	90	804	804	804	804	6.0
1,250	1,000	90	90	1,054	804	1,054	804	6.0
1,500	1,250	90	90	1,304	1,054	1,304	1,054	6.0
1,500	1,500	90	90	1,304	1,304	1,304	1,304	6.0
2000	1500	100	100	1804	1304	1804	1304	6.0

Dimensions for CH Platforms (Scale Drawings)

CH3G



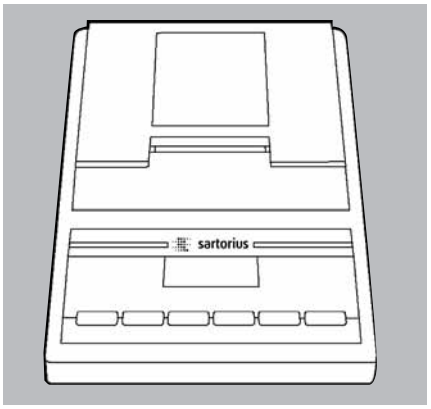
CH3E



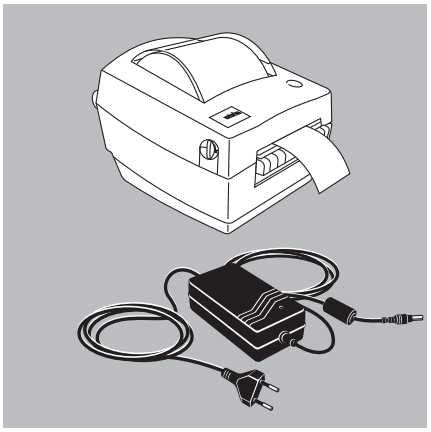
Accessories

Indicator accessories:

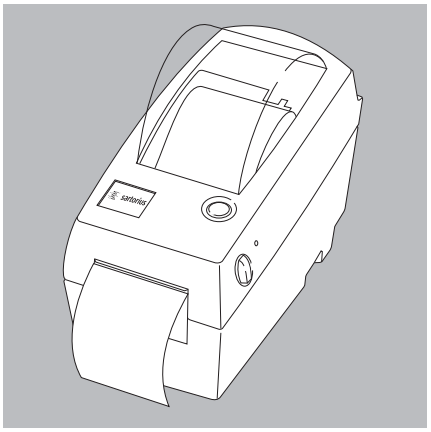
Product	Order No.
Optional Interface	
Interface module (RS-232C) for UniCOM	YDO01C-232
Interface module (RS-485/RS-422) for UniCOM	YDO01C-485
Analog current output*, 0–20 mA, 4–20 mA, 0–10 V, 16-bit	YDA01C-20MA
Profibus-DP	YDO01C-DP
Printer and Printer Accessories	



Verifiable printer with functions for date, time and statistical evaluations	YDP03-0CE
Printer paper for data printer (5 rolls; length per roll: 50 m)	6906937
Replacement ink ribbon cartridge	6906918



Verifiable strip and label printer with thermal print head, paper width 101 mm, with connecting cable (12-pin round connector) and external power supply Adapter cable YCC01-01CISLM3 required for CW3P models With 120 V power supply (USA) With 220 V power supply (EU) With 240 V power supply (GB)	YDP12IS-0CE-UV
Printer paper (1 roll) for YDP12IS-0CE printer, 101 mm × 75 m, thermo paper	69Y03196
Labels for YDP12IS-0CE, extra large, 101 × 127 mm; 305 labels	69Y03195



Verifiable strip and label printer with thermal print head, paper width 60 mm, with connecting cable (12-pin round connector) and external power supply Adapter cable YCC01-01CISLM3 required for CW3P models With 120 V power supply (USA) With 220 V power supply (EU) With 240 V power supply (GB)	YDP04IS-0CE-UV
Printer paper (3 rolls) for YDP02/04IS-0CE, 60 mm + 75 m, thermo paper	69Y03090
Labels for YDP02/04IS-0CE, small, 58 × 30 mm; 1000 labels	69Y03092
Labels for YDP02/04IS-0CE, medium, 58 × 76 mm; 500 labels	69Y03093
Labels for YDP02/04IS-0CE, large, 58 × 100 mm; 350 labels	69Y03094
Cable for direct connection of YDP02/04IS-0CE to Combics CW3P scales	YCC01-01CISLM3

* output from this interface may not be used in legal metrology

Product	Order No.
Electrical Accessories	
External red/green/red display for CW3P models	YRD11Z
Second display* for CW3P models	YRD02Z
Remote display*, 7-segment, e. g. 45 mm character size	Information on request
Bar code scanner, 120 mm scanning width, with cable for connection to Combics CW3P models	YBR02CISL
Bar code scanner for Combics CW3S models, adapter cable YCC02-R12F6 required	YBR02FC
Foot switch, incl. D-Sub 25-pin T-connector	YFS01
Hand switch, incl. D-Sub 25-pin T-connector	YHS02
External Alibi memory for electronic storage of weighing data	YAM01IS
Scanner for loading weighing data in a PC from YAM13IS card	YAM02IS
Power supply for YAM01IS or YAM02IS	YAM11IS
Memory card for YAM01IS	YAM13IS
Cable for connecting Combics indicator to YAM01IS Alibi memory	YCC01-10CIM3
Cable (9-pin D-Sub; length: 2 m) for connecting YAM01IS to PC	69EM0012
Flow control for pumps with analog or pulse interface	YFC02Z-V2
Additional Accessories	
Dust covers (2 pcs)	YDC01CI
IP65 Upgrade Kit for IP44-protected indicators (CW3P)	YAS01CISL
Anti-theft locking device	YTP01CI
Cable gland for Combics CW3S models, IP67	YAS04CIS
Mechanical Accessories	
Retainer plate for attaching the indicator to the front of the weighing platform, AISI 304 stainless steel, for platform sizes 400 × 300 mm / 500 × 400 mm	YDH12CWS
Installation kit for installing the Combics in a pit (separable connection to indicator)	YAS99I
Retainer for wall mounting; stainless steel	YDH02CIS
Floor-mounted column	YDH03CIP
Floor-mounted column; stainless steel	YDH03CIS
Base for installing the floor-mounted column	YBP03CIP
Base for installing the floor-mounted column; stainless steel	YBP03CIS
Retainer for a bar code scanner, for attachment to floor-mounted column, bench stand or complete scale retainer	YBH01CWS
Plate for attaching a printer to the floor-mounted column or bench stand	YPP01CWS
Software	
Flexible formatting options for printouts (e.g., for bar codes with variable font size, graphics, etc.)	Information available on request
Sartorius WinScale scale driver software for Windows 95/98/2000/NT. Displays the scale readout on your PC monitor and provides secure memory for storing data that is subject to legal control. YCC01-09ISM5 RS-232 connecting cable required	YSW03
SartoConnect data transfer software for connecting your Sartorius scale to a computer running Windows 95, 98 or NT. This software lets you load the data recorded by your scale in a PC application program such as MS Excel or Access. Includes a cable for connecting the scale to a PC	YSC01I

* not for use in legal metrology

Product	Order No.
Power Supply	
24V industrial power supply module	YAS02CI
External rechargeable battery pack, up to 40 h operation, incl. charger	YRB10Z
Connecting cable (25-pin D-Sub) for YRB10Z battery pack (2 m)	YCC02-RB01
Connecting cable with cable gland for YRB10Z external rechargeable battery pack (2 m)	YCC02-RB02
Connecting cable with cable gland for car battery (2 m)	YCC02-CB02
Connecting Cables	
Connecting cable with cable gland for YBR02FC bar code scanner[1])	YCC02-BR02
Connecting cable with cable gland, 9-pin D-Sub male connector, 6 m[1])	YCC02-D09M6
Connecting cable with cable gland, 9-pin D-Sub female connector, 6 m[1])	YCC02-D09F6
Connecting cable with cable gland, 25-pin D-Sub female connector, 1.5 m[1])	YCC02-D25F6
Connecting cable with cable gland, to 12-pin round male connector, 6 m[1])	YCC02-R12M6
Connecting cable with cable gland, to 12-pin female connector, 1.5 m[1])	YCC02-R12F6
Cable for YDA01C-20MA current interface,* with open cable ends, 1 m (e.g., order 5 × for a 5 m cable)	6906926
Cable for connecting a PC, 25-contact D-Sub, approx. 1.5 m	7357312
Cable for connecting a PC, 9-contact D-Sub, approx. 1.5 m	7357314
Cable for connecting an isi terminal or QA/QC or FB/FC scale; 25-pin D-Sub to 12-pin round connector, 3 m	YCC01-09ISM3
Connecting cable for connecting a scale; 25-contact D-Sub female connector (male connectors: 25-pin D-Sub to 25-pin D-Sub), 3 m	YCCDI-01M3
Cable for connecting an IS weighing platform; 25-pin D-Sub male connector D-Sub to 12-contact round female connector, 3 m	YCC01.03CISLM3

[1]) only for Combics model CW3S stainless steel version

Platform Accessories:

Dimensions Length × Width mm	**800 × 600**	**800 x 800**	**1,000 x 800**	**1,000×1,000**	**1,250×1,000**	**1,250 x 1,250**	**1,500×1,250**	**1,500×1,500**	**2,000×1,500**
Drive-on ramp, painted Order No.	YAR01CWP	YAR06CWP	YAR06CWP	YAR02CWP	YAR02CWP	YAR03CWP	YAR03CWP	YAR04CWP	YAR05CWP
Drive-on ramp, painted (tread plate) Order No.	YAR01CWPT	YAR06CWPT	YAR06CWPT	YAR02CWPT	YAR02CWPT	YAR03CWPT	YAR03CWPT	YAR04CWPT	YAR05CWPT
Drive-on ramp, AISI 304 stainless steel Order No.	YAR01CWS	YAR06CWS	YAR06CWS	YAR02CWS	YAR02CWS	YAR03CWS	YAR03CWS	YAR04CWS	YAR05CWS
Drive-on ramp, AISI 304 stainless steel (tread plate) Order No.	YAR01CWST	YAR06CWST	YAR06CWST	YAR02CWST	YAR02CWST	YAR03CWST	YAR03CWST	YAR04CWST	YAR05CWST
Drive-on ramp, AISI 316 Ti stainless steel Order No.	YAR01CWS4	YAR06CWS4	YAR06CWS4	YAR02CWS4	YAR02CWS4	YAR03CWS4	YAR03CWS4	YAR04CWS4	YAR05CWS4
Drive-on ramp, AISI 316 Ti stainless steel (tread plate) Order No.	YAR01CWST4	YAR06CWST4	–	YAR02CWST4	YAR02CWST4	YAR03CWST4	YAR03CWST4	YAR04CWST4	YAR05CWST4
Frame for pit installation, painted Order No.	YEG01CWP	YEG08CWP	YEG07CWP	YEG02CWP	YEG03CWP	YEG09CWP	YEG04CWP	YEG05CWP	YEG06CWP
Frame for pit installation, stainless steel Order No.	YEG01CWS	YEG08CWS	YEG07CWS	YEG02CWS	YEG03CWS	YEG09CWS	YEG04CWS	YEG05CWS	YEG06CWS

Length × Width mm	**320 × 240 mm**	**400 × 300 mm**	**500 × 400 mm**	**650 × 500 mm**	**800 × 600 mm**
Roller conveyor, painted: Order No.	YRC01DCA	YRC01EDA	YRC01FEA	YRC01GFP	YRC01IGP
Roller conveyor, AISI 304 stainless steel Order No.	YRC01DCS	YRC01EDS	YRC01FES	YRC01GFS	YRC01IGS
Roller-ball load plate Order No.	–	YLP01CWS	YLP02CWS	YLP03CWS	YLP04CWS
Column, painted, for attaching indicator to platform Order No.	YDH01CWP (Height 330 mm)	YDH02CWP (Height 500 mm)	YDH02CWP (Height 500 mm) YDH03CWP (Height 750 mm)	YDH03CWP (Height 750 mm)	–
Column, AISI 304 stainless steel, for attaching indicator to platform Order No.	YDH01CWS (Height 330 mm)	YDH02CWS (Height 500 mm)	YDH02CWS (Height 500 mm) YDH03CWS (Height 750 mm)	–	–
Bench, painted Order No.	–	YWT01CWP	YWT02CWP	YWT03CWP	YWT04CWP
Bench, AISI 304 stainless steel Order No.	–	YWT01CWS	YWT02CWS	YWT03CWS	YWT04CWS

Product	Order No.
Additional Options	
Set of stainless steel floor fasteners (2 fastening plates, 4 special dowel screws)	YFP01CWS
Bench stand, painted for attaching indicator, adjustable height	YDH01WTCWP
Bench stand, stainless steel for attaching indicator, adjustable height	YDH01WTCWS
Set of castors (2 guide castors + 2 lockable castors) for bench stand	YRO01WTCW
Plate for bench stand, for attaching indicator and printer	YPP01CWS
Retainer for bar code scanner, for attachment to bench stand	YBH01CWS

Connecting an IS Weighing Platform to a Combics 3 Indicator
You can connect an IS weighing platform to the COM1 or COM2 port for use as 'WP2'.

Features:
- IS weighing platforms process weighing data independently of the indicator.
- IS weighing platforms can be internally calibrated/adjusted.
- IS...-0CE models have a separate approval number, printed on a tag that is affixed to the cable.
- Please observe the conditions described in the manual for the weighing platform you connect.

Declaration of Conformity

CE Marking on Sartorius Equipment
In 1985, the Council of the European Community approved a resolution concerning a new approach to the technical harmonization and standardization of national regulations. The organization for monitoring compliance with the directives and standards concerning the CE marking is governed in the individual EU Member States through the implementation of the EC Directives adopted by the respective national laws. As of December 1993, the scope of validity for all EC Directives has been extended to the Member States of the European Union and the Signatories of the Agreement on the European Economic Area.
Sartorius complies with the EC Directives and European Standards in order to supply its customers with weighing instruments and related equipment that feature the latest technology and provide many years of trouble-free service.
The CE marking may be affixed only to weighing instruments and associated equipment that comply with the following Directives:
Council Directive 89/336/EEC "Electromagnetic compatibility (EMC)"
Applicable European Standards:
1. Electromagnetic Compatibilty
1.1 Reference to 89/336/EEC:
Official Journal of the European Communities, No. 2001/C 105/03

EN 61326-1	Electrical equipment for measurement, control and laboratory use EMC requirements
Part 1:	General requirements Defined immunity to interference: Industrial areas, continuous unmonitored operation Limitation of emissions: Residential areas, Class B

Important Note:
The operator shall be responsible for any modifications to Sartorius equipment (not allowed on equipment to be verified for legal metrology) and for any connections of cables or equipment not supplied by Sartorius and must check and, if necessary, correct these modifications and connections. On request, Sartorius will provide information on the minimum operating specifications (in accordance with the Standards listed above for defined immunity to interference).

Council Directive 73/23/EEC "Electrical equipment designed for use within certain voltage limits"
Applicable European Standards:

EN 60950	Safety of information technology equipment including electrical business equipment
EN 61010	Safety requirements for electrical equipment for measurement, control and laboratory use
Part 1:	General requirements

If you use electrical equipment in installations and under ambient conditions requiring higher safety standards, you must comply with the provisions as specified in the applicable regulations for installation in your country.

Only for equipment with Option Y2: 94/9/EC "Electrical equipment and protective systems intended for use in potentially explosive atmospheres"

Applicable European Standards:

EN 50014 General requirements
EN 50021 Type of protection "n" *
EN 50281-1-1 Electrical apparatus for use in the presence of combustible dust
Part 1-1:
Electrical apparatus protected by enclosures – Construction and testing
(see Declaration of Conformity included in this instruction manual)

* This standard was replaced by EN 60079-15 "Construction, test and marking of type of protection "n" electrical apparatus"; the equipment described in this manual also meets the relevant requirements of this European Standard.

If you use this electrical equipment in installations and under ambient conditions requiring higher safety standards, you must comply with the provisions as specified in the applicable regulations for installation in your country.

Weighing Instruments for Use in Legal Metrology:
Council Directive 90/384/EEC "Non-automatic weighing instruments"
This Directive regulates the determination of mass in legal metrology.
For the respective Declaration of Type Conformity for Sartorius weighing instruments verified for use as legal measuring instruments that have an EC Type-Approval Certificate, see the respective page in this instruction manual. This Directive also regulates the performance of the EC verification by the manufacturer, provided that an EC Type-Approval Certificate has been issued and the manufacturer has been accredited by an officer of a Notified Body registered at the Commission of the European Community for performing such verification. Sartorius complies with EC Directive No. 90/384/EEC for non-automatic weighing instruments, which has been in effect since January 1, 1993, within the Single European Market, as well as the accreditation of the Quality Management System of Sartorius AG by the (Niedersächsische Mess- und Eichwesen) MEN from February 15, 1993.
For additional information on the CE mark on Sartorius equipment, see Sartorius Publication No. W–0052-e93081.

"EC Verification" – A Service Offered by Sartorius

Our service technicians authorized to perform the verification of your weighing instruments that are acceptable for legal metrological verification can inspect and verify the metrological specifications at the place of installation within the Member States of the European Union and the Signatories of the Agreement on the European Economic Area.

Subsequent Verifications within the European Countries
The validity of the verification will become void in accordance with the national regulations of the country in which the weighing instrument is used. For information on verification and legal regulations currently applicable in your country, and to obtain the names of the persons to contact, please contact your local Sartorius office, dealer or service center.

For more information on the verification of weighing instruments for use in legal metrology, contact the Sartorius Service Center.

CE Declaration of Type Conformity to Directive No. 90/384/EEC

This declaration is valid for non-automatic electromechanical weighing instruments for use in legal metrology. These weighing instruments accepted for legal metrological verification have an EC Type-Approval Certificate. The model(s) concerned is(are) listed below along with the respective type, accuracy class, and number of the EC Type-Approval Certificate:

Model	Type weighing instrument	Type indicator	Accuracy class	EC type-approval certificate no.	Indicator test certificate no.
CW...-.CE	SARTICS	TN	(III)	D04-09-015	D09-03.13

SARTORIUS AG declares that its weighing instrument types comply with the requirements of the Council Directive on non-automatic weighing instruments, no. 90/384/EEC of 20 June 1990; the associated European Standard "Metrological aspects of non-automatic weighing instruments," No. EN 45501; the amended, currently valid versions of the national laws and decrees concerning legal metrology and verification in the Member States of the European Union, the EU, and the Signatories of the Agreement on the European Economic Area, which have adopted this Council Directive into their national laws; and with the requirements stipulated on the Type-Approval Certificate for verification. This Declaration of Type Conformity is valid only if the ID label on the weighing instrument has the CE mark of conformity and the green metrology sticker with the stamped letter "M" (the two-digit number in large print stands for the year in which the mark has been affixed):

CE 04 0111 M

If these marks are not on the ID label, this Declaration of Type Conformity is not valid. Validity can be obtained, for example, by submitting the weighing instrument for final action to be taken by an authorized representative of SARTORIUS AG. The period of validity of this Declaration of Type Conformity shall expire upon any tampering with, repair or modification of this weighing instrument or, in some Member States, on the date of expiration.
The operator of this weighing instrument shall be responsible for obtaining an authorized renewal of the verification, such as subsequent or periodic verification, of the weighing instrument for use as a legal measuring instrument.

Sartorius AG
37070 Goettingen, Germany
Signed in Göttingen, 01.11.2004

Dr. G. Maaz
(President of the Mechatronics Division)

J. Rehwald
(Head of the Production Department
Mechatronics / Weighing Technology Division)

OAW–113-2/02.96
P106ef03.doc

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

PTB

EG-Bauartzulassung

EC type-approval certificate

Zulassungsinhaber: *Issued to:*	Sartorius AG Weender Landstr. 94-108 37075 Göttingen
Rechtsbezug: *In accordance with:*	§ 13 des Gesetzes über das Mess- und Eichwesen *(verification act)* vom/*dated* 23. März 1992 (BGBl. I S. 711), zuletzt geändert am *(last amended on)* 02.02.2007 (BGBl. I S. 58), in Verbindung mit Richtlinie *(in connection with council directive)* 90/384/EWG, geändert durch *(amended by)* 93/68/EWG
Bauart: *In respect of:*	Nichtselbsttätige elektromechanische Waage mit oder ohne Hebelwerk *Nonautomatic electromechanical weighing instrument with or without lever system*
Typ / *Type*:	SARTICS
	Max 0,5 kg ... 300 t — Option: Mehrbereichs- und Mehrteilungswaage (III) n ≤ 10000 — *multi-interval and multiple range instrument* (IIII) n ≤ 1000
Zulassungsnummer: *Approval number:*	**D04-09-015 4. Revision**
Gültig bis: *Valid until:*	07.04.2014
Anzahl der Seiten: *Number of pages:*	12
Geschäftszeichen: *Reference No.:*	PTB-1.12-4031854
Benannte Stelle: *Notified Body:*	0102

Im Auftrag
By order

Marcus Link

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 40

Braunschweig, 15.10.2007

Siegel
Seal

R3-0023

Die Hauptmerkmale, Zulassungsbedingungen und Auflagen sind in der Anlage enthalten, die Bestandteil der Revision der EG-Bauartzulassung ist. Hinweise und eine Rechtsbehelfsbelehrung befinden sich auf der ersten Seite der Anlage

The principal characteristics, approval conditions and special conditions, if any, are set out in the Annex which forms an integral part of this Revision of the EC type-approval certificate. For notes and information on legal remedies, see first page of the Annex.

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

Prüfschein

Test certificate

Ausgestellt für: *Issued to:*	Sartorius AG Weender Landstr. 94-108 37075 Göttingen
Prüfgrundlage: *In accordance with:*	EN 45501 (1992), Nr. 8.1, WELMEC-Dokument 2.1 (2001) EWG Richtlinie 90/384/EWG, OIML R 76-1
Gegenstand: *Object:* Typ */ Type:*	Anzeige- und Bedienterminal *Indication and operating device* TN , TN-X
Kennummer: *Serial number:*	
Prüfscheinnummer: *Test certificate number:*	D09-03.13 2. Revision *D09-03.13 Revision 2*
Datum der Prüfung: *Date of Test:*	
Anzahl der Seiten: *Number of pages:*	9
Geschäftszeichen: *Reference No.:*	PTB-1.12-4017974
Benannte Stelle: *Notified Body:*	0102

Im Auftrag
By order

Marcus Link

Braunschweig, 26.05.2005

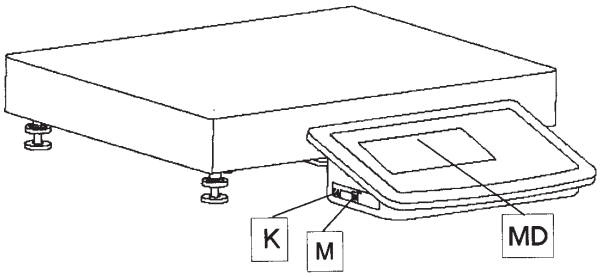
Siegel
Seal

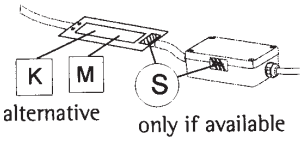
PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 40

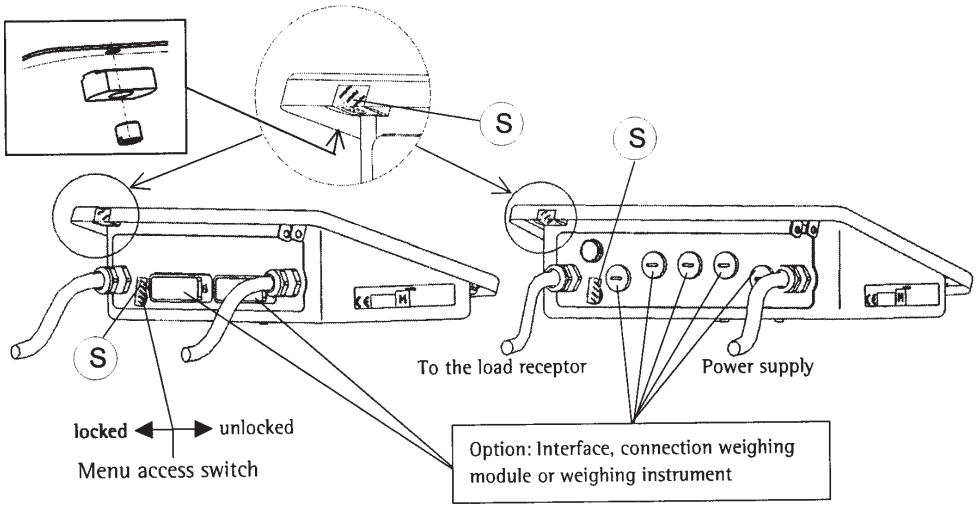
R3-0025

Hinweise siehe erste Seite der Anlage, die Bestandteil des Prüfscheines ist.
For notes, see first page of the Annex which forms an integral part of the test certificate.

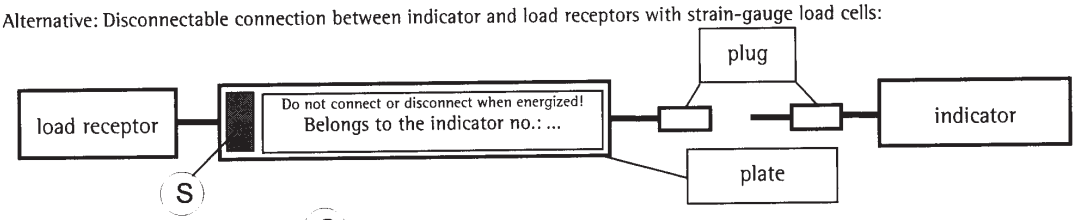
Plates and Markings

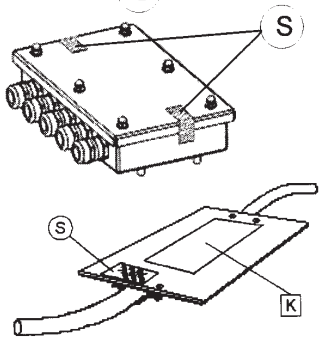






Alternative: Disconnectable connection between indicator and load receptors with strain-gauge load cells:





If there is a junction box between load receptor and electronic evaluation unit the junction box has to be secured against inadmissible manipulation.

Alternative place for the Descriptive Plate of the weighing instrument
Handling in this case:
Affix the ID label of the weighing instrument to the delivered tag plate. Affix the ID tag plate to the data cable of the weighing module near the indicator. The verification officer or an authorized Sartorius representive must then seal the ID tag plate to the fastener.

M Mark for EC verification (green metrology sticker)

K Descriptive plate with CE-conformity

S Protective mark

MD Metrological data: Max, Min, e, (d)

PPCW3091104e

Type weighing instrument: SARTICS Type indicator: TN
EC type-approval certifcate D04-09-015 + Test certificate D09-03.13

Example of descriptive plate of the verified weighing instrument [K]

Example of plate with model designation of the terminal [T]

Example of plate with model designation of the platform

PPCW3091104e

Type weighing instrument: SARTICS Type indicator: TN
EC type-approval certifcate D04-09-015 + Test certificate D09-03.13

CE Declaration of Type Conformity to Directive No. 90/384/EEC

This declaration is valid for non-automatic electromechanical weighing instruments for use in legal metrology. These weighing instruments accepted for legal metrological verification have an EC Type-Approval Certificate. The model(s) concerned is(are) listed below along with the respective type, accuracy class, and number of the EC Type-Approval Certificate:

Model	Weighing instrument type	Accuracy Class	EC Type Approval No.	In Conjunction with Test Certificate	
				Type	Certificate No.
CH...-.0CE	iso-TEST	(II)	D97-09-018	BF BF	D09-96.30
CH...-.0CE	iso-TEST	(II)	D97-09-018	HC BF	D09-96.30
CH...-.0CE	iso-TEST	(II)	D97-09-018	HA BD	D09-95.18

SARTORIUS AG declares that its weighing instrument types comply with the requirements of the Council Directive on non-automatic weighing instruments, no. 90/384/EEC of 20 June 1990; the associated European Standard "Metrological aspects of non-automatic weighing instruments," No. EN 45501; the amended, currently valid versions of the national laws and decrees concerning legal metrology and verification in the Member States of the European Union, the EU, and the Signatories of the Agreement on the European Economic Area, which have adopted this Council Directive into their national laws; and with the requirements stipulated on the Type-Approval Certificate for verification. This Declaration of Type Conformity is valid only if the ID label on the weighing instrument has the CE mark of conformity and the green metrology sticker with the stamped letter "M" (the two-digit number in large print stands for the year in which the mark has been affixed).

Example (date/year and number of the notified body may vary):

CE 08 0111 M

If these marks are not on the ID label, this Declaration of Type Conformity is not valid. Validity can be obtained, for example, by submitting the weighing instrument for final action to be taken by an authorized representative of SARTORIUS AG. The period of validity of this Declaration of Type Conformity shall expire upon any tampering with, repair or modification of this weighing instrument or, in some Member States, on the date of expiration. This declaration applies only to the unmodified weighing instrument without peripheral devices.
The operator of this weighing instrument shall be responsible for obtaining an authorized renewal of the verification, such as subsequent or periodic verification, of the weighing instrument for use as a legal measuring instrument.

Sartorius AG
37070 Goettingen, Germany
Signed in Göttingen, 20.02.2008

Dr. G. Maaz
President of the Mechatronics Division

i. V. J. Rehwald
J. Rehwald
Head of the Production Department
Mechatronics / Weighing Technology Division

LOP-3.225_an2e_2005.06.09.doc
P106eo00.doc

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

PTB

EG-Bauartzulassung

EC type-approval certificate

Zulassungsinhaber: *Issued to:*	Sartorius AG Weender Landstr. 94-108 37075 Göttingen
Rechtsbezug: *In accordance with:*	§ 13 des Gesetzes über das Mess- und Eichwesen *(verification act)* vom*/dated* 23. März 1992 (BGBl. I S. 711), zuletzt geändert am *(last amended on)* 02.02.2007 (BGBl. I S. 58), in Verbindung mit Richtlinie *(in connection with council directive)* 90/384/EWG, geändert durch *(amended by)* 93/68/EWG
Bauart: *In respect of:*	Nichtselbsttätige elektromechanische Waage mit oder ohne Hebelwerk *Nonautomatic electromechanical weighing instrument with or without leverwork*
Typ / *Type*:	iso-TEST Genauigkeitsklasse/*class* (I), (II), (III), (IIII) Max 2,1 g ... 300 t Option: Mehrteilungswaage, Mehrbereichswaage *Multi-interval instrument, multiple range instrument*
Zulassungsnummer: *Approval number:*	**D97-09-018 7. Revision**
Gültig bis: *Valid until:*	26.06.2017
Anzahl der Seiten: *Number of pages:*	18
Geschäftszeichen: *Reference No.:*	PTB-1.12-4030179
Benannte Stelle: *Notified Body:*	0102

Im Auftrag
By order

Marcus Link

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 40

Braunschweig, 29.06.2007

Siegel
Seal

Die Hauptmerkmale, Zulassungsbedingungen und Auflagen sind in der Anlage enthalten, die Bestandteil der Revision der EG-Bauartzulassung ist. Hinweise und eine Rechtsbehelfsbelehrung befinden sich auf der ersten Seite der Anlage

The principal characteristics, approval conditions and special conditions, if any, are set out in the Annex which forms an integral part of this Revision of the EC type-approval certificate. For notes and information on legal remedies, see first page of the Annex.

R3-0023

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

PTB

Prüfschein

Test certificate

Ausgestellt für: *Issued to:*	Sartorius AG Weender Landstraße 94 – 108 37075 Göttingen Bundesrepublik Deutschland
Prüfgrundlage: *In accordance with:*	EN 45501 (1992), Nr.8.1, OIML R 76-1 (1992)
Gegenstand: *Object:*	Lastaufnehmer mit Wägezelle und Auswerteelektronik mit digitalem Ausgang als Modul einer elektromechanischen Waage zum Anschluß an geeignete Anzeige- und Bedienterminals *Load receptor with load cell and electronic device with digital output as module of an electromechanical weighing instrument for connection to suitable display- and operator-terminals* Typ / *type* **BA BF, BC BF, BD BF, BF BF, HC BF, MA BF und MD BF**
Kennummer: *Serial number:*	---
Prüfscheinnummer: *Test certificate number:*	D09-96.30 7. Revision / *Revision 7*
Datum der Prüfung: *Date of Test:*	
Anzahl der Seiten: *Number of pages:*	12
Geschäftszeichen: *Reference No.:*	1.14 – 02001430
Benannte Stelle: *Notified Body:*	0102

Im Auftrag
By order

Link

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 40

Braunschweig, 2002-11-13

Siegel
Seal

392 00 e-rb

Hinweise siehe erste Seite der Anlage, die Bestandteil des Prüfscheines ist.
For notes, see first page of the Annex which forms an integral part of the test certificate.

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

Prüfschein

Test certificate

Ausgestellt für: *Issued to:*	Sartorius AG Weender Landstraße 94 – 108 37075 Göttingen Bundesrepublik Deutschland
Prüfgrundlage: *In accordance with:*	EN 45501 (1992), Nr. 8.1, WELMEC-Dokument 2.1 (Issue 2, 1998) EWG Richtlinie 90/384/EWG, OIML R 76-1 (1992)
Gegenstand: *Object:*	Lastaufnehmer mit Wägezelle und Auswerteelektronik mit digitalem Ausgang als Modul einer elektromechanischen Waage zum Anschluß an geeignete Anzeige- und Bedienterminals *Load receptor with load cell and electronic device with digital output as module of an electromechanical weighing instrument for connection to suitable display- and operator-terminals* Typ / *type* **HA BD**
Kennummer: *Serial number:*	---
Prüfscheinnummer: *Test certificate number:*	D09-95.18 1. Revision / *Revision 1*
Datum der Prüfung: *Date of Test:*	---
Anzahl der Seiten: *Number of pages:*	7
Geschäftszeichen: *Reference No.:*	1.14 – 01035016
Benannte Stelle: *Notified Body:*	0102

Im Auftrag
By order

Link

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 40

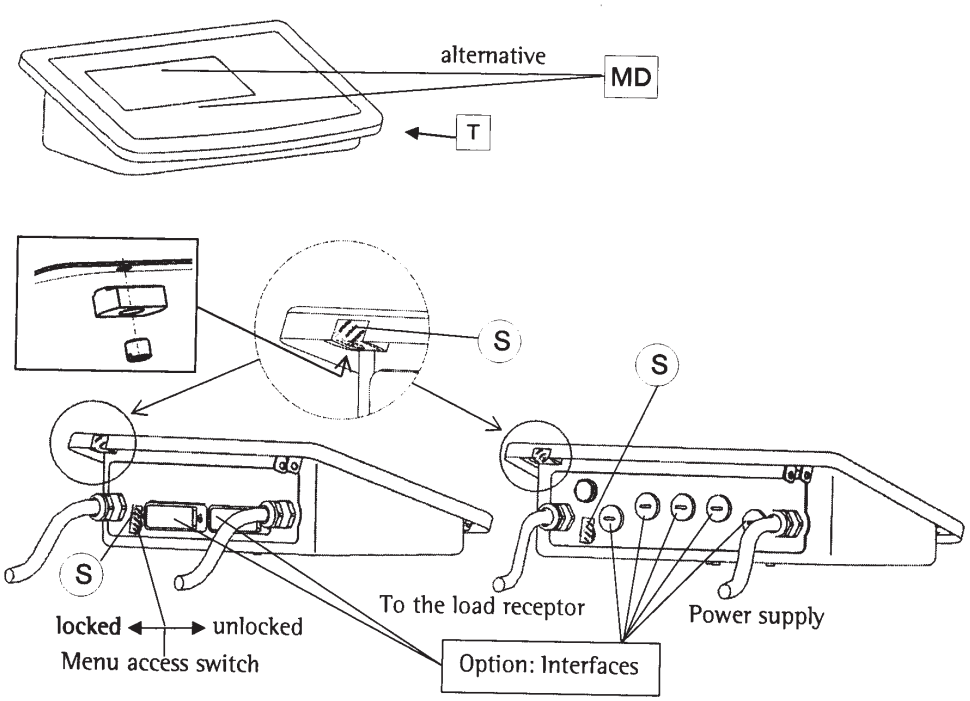
Braunschweig, 2001-05-21

Siegel
Seal

392 00 e-rb

Hinweise siehe erste Seite der Anlage, die Bestandteil des Prüfscheines ist.
For notes, see first page of the Annex which forms an integral part of the test certificate.

Plates and Markings



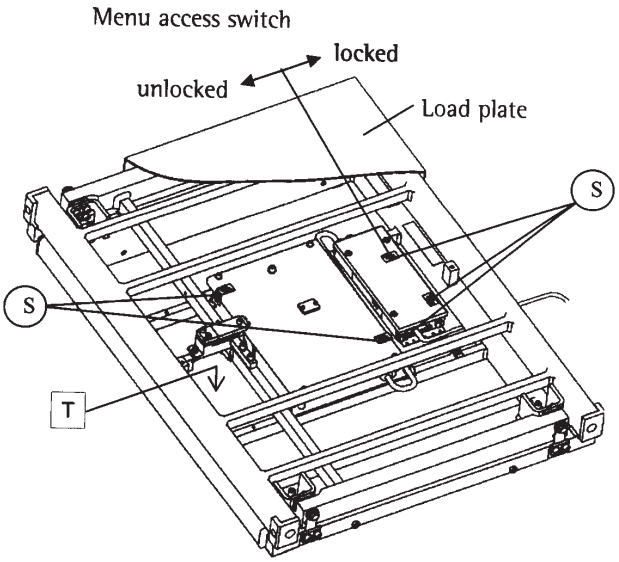
M Mark for EC verification (green metrology sticker)

K Descriptive plate with CE-conformity mark

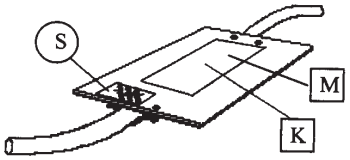
S Protective mark

MD Metrological data: Max, Min, e, (d)

T Plate with model designation

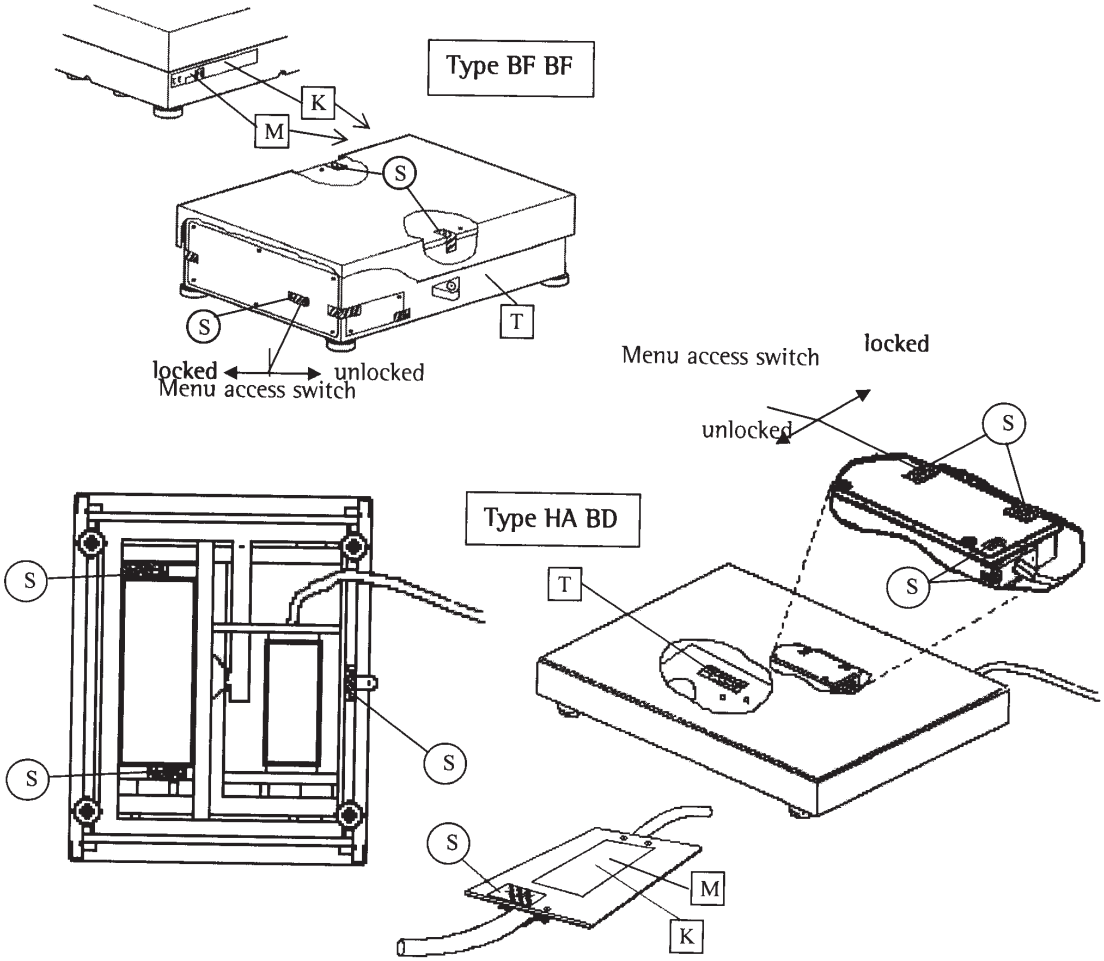


Type HC BF



PPHC140308e

Type weighing instrument: iso-TEST Type weighing module: BF BF, HC BF, HA BD
EC type-approval certifcate D97-09-018 + Test certificate D09-96.30, D09-95.18



Example (type HC BF) of descriptive plate K
on a weighing instrument already verified

SARTORIUS AG GERMANY
CE 08 0111 M
iso-TEST D97-09-018
HC BF D09-96.30
0 °C / +40 °C
II
12345678

Example of plate with model designation (terminal) T

SARTORIUS AG GERMANY
CH3G-300IGG-H0CE (TN)
12345678 D09-03.13

Example of plate with model designation (weighing module) T

SARTORIUS AG GERMANY
CH3G-300IGG-H0CE (HC BF)
12345678 D09-96.30

PPHC140308e

Type weighing instrument: iso-TEST Type weighing module: BF BF, HC BF, HA BD
EC type-approval certifcate D97-09-018 + Test certificate D09-96.30, D09-95.18

Index

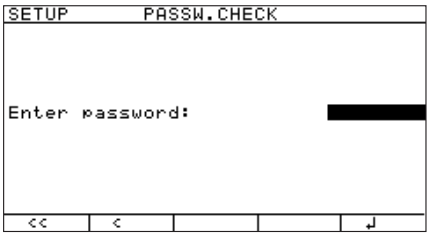
General Password

SETUP

Activate the Setup program

2 × **soft key** ˅,
s**oft key** ˃

Select `Device parameters` (or Application parameters) and confirm



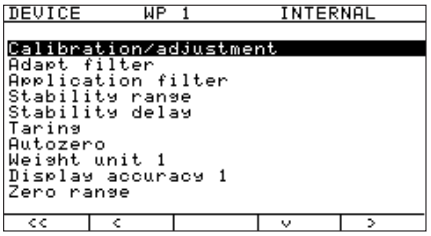
The password prompt is displayed

Enter numbers

Enter the General Password (see below)

Soft key ↵

Confirm the password

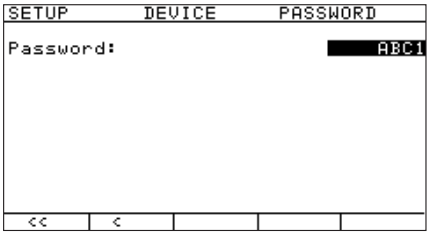


The parameter menu is displayed

Soft key ˅ (repeatedly, if necessary)

Read the old password, or enter a new password (max. 8 characters)

Soft key ↵



To delete the password: Press [·] or [CF] and then confirm by pressing the ↵ soft key

Soft key ˂˂

Exit the Setup menu

Restart the application

General Password:
40414243

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